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'Intellekt' Fund To Aid Scientists, Young Scholars

917A0146A Moscow RADIKAL in Russian No 17,
3-9 May 91 p 2

[Article by Leonid Zavarskiy: "'Intellekt' Teaches How to Fish"]

[Text] The number of different funds today has increased exceedingly—only cooperative stalls are opened more often. One cannot do here without the costs of growth, and, although this has also not become the rule, a significant portion of the funds exist rather for the benefit of those who belong to their boards. But, as Ostap Bender said, "if any bank notes are wandering in the country, there should be people who have many of them." Let us add on our behalf that if funds have the bank notes, a large quantity of them will inevitably be used for truly noble goals. Among the latter is the establishment of "the necessary material and organizational conditions for the harmonious development of the creative abilities of children, school children, students, and other young people, the identification and support of talented people, and the aiding of their formation as highly skilled specialists in the area of science, technology, economics, management, education, and culture."

That is what is recorded in the charter of the "Intellekt" All-Union Charitable Fund, the presentation of the business tours of which took place at the USSR Exhibition of Achievements of the National Economy. About them a little later, but for the present about the founders, especially as a venerable group was selected—the USSR Union of Scientific and Engineering Societies, the USSR State Committee for Public Education, the Committee of the USSR Supreme Soviet for Science, Public Education, and Training, the USSR Association of Engineering Higher Educational Institutions, the USSR Academy of Sciences, the USSR Committee of Public Examination, and the USSR Exhibition of Achievements of the National Economy. However, in spite of the resounding names of the organizations, the till of the fund is not at all swelling with money—now, as never before, the state is doing nothing in the area of the retention of the available intellectual personnel and the training of new ones, therefore, the founders are not noted for wealth. The fund is setting itself the task to give any assistance to those who promise to become a serious specialist and scientist. The giving of support to the stratum of people of science, who under present conditions are beginning to be destitute in the literal sense of the word, seems very important. Assets, which the fund obtains independently, are needed for all this. So-called business tours—cruises on a comfortable motorship, on which experienced specialists, including American specialists, conduct series of classes in the area of science, technology, marketing, business, business contacts, and the

study of foreign languages "with leave from relaxation"—have been organized for this purpose. Well-to-do students pay for the cruise, therefore, a portion of the students, for example, the best undergraduates of universities, the winners of competitions, and upper-classmen from the Chernobyl zone, can study free of charge. The business tours teach young or future specialists to get their bearings in the world of the free market, which sooner or later our science will inevitably enter. In order to help it, "Intellekt" is not confining itself just to business tours. Jointly with the American Jefferson Institute the fund is planning to organize in Moscow a center for the training of businessmen with affiliates in Leningrad, Kiev, Minsk, and other cities. It is a matter not simply of the training and support of talented people in the area of science, technology, economics, and culture, but also of the familiarization of people of science with business. Doctor of Technical Sciences Prof. Elvin Kalinin, chairman of the board of the "Intellekt" Fund, believes that business initiative in combination with thorough scientific knowledge is the only means of any progress.

Another task of the fund is to help solve the Chernobyl problem. Not as is now being done—with the cries "This should not be repeated!" and the display of the Chernobyl ulcers for obtaining western humanitarian aid, but on the basis of a weighed investment policy, the main goal of which is the resettlement of people from the contaminated regions. Up to 40 billion rubles and dollars will be required just for the first stage of this action—the moving away and setting up of 300,000 people—therefore, the only alternative for the obtaining of these assets is to give those, who would desire to invest these assets, a chance to earn some money. "Intellekt" is not afraid that people may regard such an approach as indecent—this is better than the nearly all but declarative declarations today. Together with the "Ekoprom" Consortium and the All-Union Movement for the Restoration of the Environment and Morality the fund is the initiator of the Appeal to government and business circles of different countries to make their contribution on the basis of mutual advantage to the solution of the Chernobyl problem.

"Intellekt" regards as the main thing in its activity not so much the payment of subsidies to the needy—in themselves they do not solve anything—but the elaboration of steps on the provision of comprehensive assistance to a person, be it a young talented person or a man of science, who has been put in a difficult position by the present times. To give them additional knowledge and the ability to adapt painlessly under the new conditions—such is the task of the fund. Not by chance does E. Kalinin like to recall the saying of one of the instructors of the business tours, Jefferson Institute President Mark Stollard, that if you give a person a fish, he will live one day. If you teach him how to fish, he will live an entire lifetime.

Academician, People's Deputy Interviewed on Information Society

*917A0150A Tallinn SOVETSKAYA ESTONIYA
in Russian 9 Apr 91 p 2*

[Interview with Academician of the Academy of Sciences of Estonia and USSR People's Deputy Enn Haroldovich Tyugu by Alma Favorskaya; date and place not given: "The Information Era, or a Society That Has Been Organized Intelligently. The Subject of Our Interview Is Academician of the Academy of Sciences of Estonia Enn Tyugu"—first five paragraphs are SOVETSKAYA ESTONIYA introduction]

[Text] For several recent years he was in charge here of the Information Science and Technical Sciences Department. An academician and USSR people's deputy, he participated in the union parliament in the work of the permanent commission for transportation, communications, and information science.

"...As I understand it, Enn Haroldovich, information society is a new, highly organized society, which is already developing in leading countries, but which you and I in our lifetime will not see."

"But why? I hope...."

You hear fairly often or read: information society, info society. A new stage of scientific and technical progress. That is, already the **postindustrial** stage. You ponder: At this stage of development no longer natural resources, capital, and manpower, but the knowledge gained by society and the ability to manage it in the best way are becoming decisive for states. Knowledge (or else information) is turning, thus, for society into a new quality of the organization of the life of society itself. Is that not so?

Having formulated this general assumption for myself, I try to "ground" it, to bring it closer to each of us, and in the conversation with the academician I ask:

[Favorskaya] But for what is it, information society, interesting for man himself? For what is it tempting?

[Tyugu] You see, Enn Tyugu immediately finds an easily understood formula, this is life, in which everything this is arranged naturally and is convenient for us.

[Favorskaya] Well, you enter for the first time, for example, the United States or Sweden or Denmark—you have been there—and all around, as they say, "everything is foreign." Is it possible also not to get one's bearings in something?

[Tyugu] These misgivings disappear very quickly and by themselves. Information is presented in such a way that it serves you for all occasions of life.

But the trouble, incidentally, begins when returning home, to Sheremetyevo-2. And precisely due to something wrong in terms of information. No one knows whether your bus will arrive on schedule, where to look for lost baggage, and so on. Misalignments, hitches at

every step—this is so usual for us, is it not? But life in civilized society today can be arranged simply far more pleasantly, if the information network is organized so that it reaches everyone.

[Favorskaya] That is, provided society both values information and spares no expense on it? For information and computerization—on such a scale—are a very expensive matter. Only the state, which has already solved at home the problem of "providing clothing, shoes, and food," can venture this.

[Tyugu] In many countries, as is known, such a problem does not exist. Only 2 percent of the able-bodied people are employed in agricultural production—and this is entirely adequate, it is more than enough. Labor productivity is high, society begins to invest assets in earnest in the sphere of information, it becomes an independent sphere of the economy.

[Favorskaya] It is understandable: The role of information in society corresponds to the level of its development. But we in our country, with the breakthrough to glasnost, began to sense an appetite for information, although we have not yet had time to become rich. What is to be done?

[Tyugu] Here what is it important to remember? That any delay in the dissemination of information, that is, knowledge, slows the development of the state, and vice versa. Who are the main "vendors" of information today? These are the United States, the FRG, and Japan. Enormous databases, which with the aid of computers give answers to questions a thousandfold more rapidly than if this were done manually, already exist in the world. In the United States they are thinking about establishing a system of "information highways"—a nationwide network. By using it, scientists and instructors, for example, will be able to obtain in remote access mode any information. Modern communications is also a characteristic feature of information society.

Provision with information reduces the harm to the environment and relieves traffic flows. Automated banks perform operations in a matter of seconds, because they do not need to exchange "papers," as in our country, it is sufficient to exchange the corresponding information.

That is, as a whole the possession of information, if one knows how to use it, is an opportunity to draw at the right time reasonable conclusions, to form realistic plans, and to fulfill them. And this is why the gathering, storage, processing, and duplication of information with the aid of advanced computer hardware are becoming a particular concern of leading countries. The majority of companies of France, Germany, and England consider it necessary to have a strategic plan of informatization for the next few years. In the States 50-60 percent of all graduates of higher educational institutions are specialists who are well acquainted with information processing. We, too, must take this path.

Incidentally, videos, faxes, and electronic mail and press are also "children" of information society.

[Favorskaya] Do we—this is precisely you and I, cyberneticists, specialists in electronics, and journalists—have, thus, the first "cells" of sorts of such a society?

[Tyugu] If you wish.... In the world today information technologies are the most rapidly developing technologies. How intelligent, for example, the washing machine has become: It selects itself the wash cycle depending on the quantity, the quality of the material, and the dirtiness of what people have loaded into it.

([Favorskaya] "If it would itself also iron things and put them in a pile!")

[Tyugu] We will have to learn very much and at the same time to cooperate with those who have forged ahead. The slogan—do you remember it?—"We will do everything ourselves"—is absurd. It will not work out that way. Information links the entire world, contacts between states today are so close that if someone isolates himself, this is a catastrophe for him. It is necessary to maintain contacts.

[Favorskaya] And are we maintaining them?

[Tyugu] Soviet scientists, as far as I can judge, are all the same associating with western scientists with difficulties. First, many are still ignoring the need to know English—and because of this are missing the opportunity to enter into foreign contacts—to converse, write, and speak. Second, they are agreeing warily to the publication of their works abroad. The Main Administration for Safeguarding State Secrets in the Press no longer exists, but its ghost is alive, sits inside.... But without the exchange of information correct forecasts for the future in the country are also impossible today.

[Favorskaya] I read somewhere that the attitude toward the future among Europeans changed after World War I: People began to perceive the future as a source of threats. The very pace of the changes began to cause them anxiety.

[Tyugu] Information society, however paradoxical, also gives grounds for apprehensions, it is necessary to state frankly. For whoever has a very large amount of information, can begin to manipulate it in his own interests. In the novel of Orwell—do you remember?—everything is based precisely on the existence of different levels of information. At the lowest one, which is poorest in information, a daily helping of spirits suffices a person for happiness. At the next level—where there is a little more knowledge—the opportunities are more extensive. In society those who have access to any information are omnipotent.

[Favorskaya] But, strictly speaking, it was always that way, in all societies....

[Tyugu] I agree. There is just one difference: In information society, with its previously inconceivable possibilities, this is particularly frightening.

Another danger is the fact that, apparently, it will not be possible to give everyone an equally good education. Some people will be capable of handling new equipment, others will not. And if some part of society is obviously the loser, it will also be impossible to achieve social harmony. Who are the unemployed in the United States? Semiliterate people who do not know how to use information.

[Favorskaya] But a wealthy society, apparently, can somehow compensate for the same educational inequality, and then this would be a "society of balanced interests."

[Tyugu] If one agrees with your definition, present-day Denmark and Sweden are such a society. But there is another danger there: Due to the achieved high standard of living many people no longer believe in the meaning of intensive labor. Whereas in the United States the aspiration to earn a lot is still the strongest stimulus for labor, in Sweden the motivation is low. People obtain an education more "for themselves," too few gifted young people are going to technical higher educational institutions. And it may turn out that in the end machines will no longer be able to replace the labor of man, while people will cease to be concerned with machines.

[Favorskaya] Is there a threat of "the total dissemination of idleness"? When labor is not mandatory and loses social significance? But in general, in my opinion, it is hard not to grow lazy, if it is sufficient "to push a button" in order to hook up to any data bank and to obtain on one's home screen any information—from the state of the environment somewhere in Namibia to the latest discoveries of "Kremlinology." Is it heading for this? In the Netherlands, I read, there is 1 percent of all the data banks of the world, and there are all areas for you—business, economics, firms, legislation, government information—everything that may be of interest, up to "news for everyone." In the United States three years ago nearly 3,000 databases were in operation—scientists, engineers, businessmen, politicians, and so on used them.

[Tyugu] We have forgotten another possible negative consequence of the information revolution—in the military sphere. The power of weapons and, thus, also the threat of the forcible resolution of conflicts may increase many fold. After all, what is the war in the Persian Gulf? On one belligerent side there is a high degree of information, on the other there is quite crude hardware plus "heated up" patriotism. And who won?...

[Favorskaya] The world in general needs a new set of values. The idea, although not a new one, somehow is poorly realized by people. Is it not true?

[Tyugu] Mankind is a child, who has approached a tractor with a running motor and may start it moving,

without understanding to what this will lead. We are not yet old enough to use information properly. If this work with information attains a new level, mankind will survive, if not, it will perish.

[Favorskaya] We will all the same be optimists.

What prospects in the sense of informatization do you have in Estonia?

[Tyugu] In Estonia the fact that an interest in computers, of course, exists here, is reassuring. The prices for them even on the black market are comparable, figuratively speaking, to prestigious goods like brand-name running shoes. But in the sense of the use of computers, although we lag behind the West, it is not a hopeless big lag. In the number, by about seven to eight years (for example, as compared with Finland). In technical level, by about five years. (Simply no one sells older foreign computers.)

[Favorskaya] Will we be able, in your opinion, to use somehow the advantages of our "late entry" into developed society, if such advantages exist, of course?

[Tyugu] In the sense of the choice of our subsequent path? Yes. If we now, in the Estonian SSR, would be able to subsist, and I am almost certain that we would be able to, we could subsequently "cut corners"—not repeat the mistakes of others in choosing. Not dig up, for example, further in Estonia and sell our reserves of shale and

phosphorites, but to rely immediately on knowledge, on science—on information technology. Use and sell the product of our mental potential. The training of skilled specialists in information science is our trump card. The production of computer software, it is considered, also is. And the price of this product in the world, by the way, is increasing all the time.

[Favorskaya] The say about Estonia—I have had occasion to hear this—"a strong computer republic."

[Tyugu] Take the same banking business, we have already spoken about it. It would be possible to organize here more commercial banks and to serve the entire Soviet Union. But for this we all should live in harmony. But in Estonia the number of all kinds of parties is continuing to grow. There is not enough room, I am afraid, for all their representatives at one round table.

[Favorskaya] Do you still hope that we all will have enough sense not to break off the longstanding ties of peoples, not to turn away from each other forever, and to preserve good cooperation on the path to common progress?

[Tyugu] I do. I hope that Moscow will still begin talks with Estonia.

[Favorskaya] Thank you.

USSR Law on Inventions Published

*914A0868A Moscow IZVESTIYA in Russian 15 Jun 91
Union Edition pp 4-5*

[Law signed by USSR President M. Gorbachev on 31 May 1991: "Union of Soviet Socialist Republics Law on Inventions in the USSR"]

[Text]

I. The Invention and Its Legal Protection

Article 1. Conditions of invention patentability

1. An invention is provided legal protection if it is new, if it has an inventive level, and if it has industrial application.

An invention is new if it is not previously known from the existing level of technology.

An invention has an inventive level if it does not obviously follow from a specialist's level of technology.

The level of technology is determined according to all types of information generally accessible in the USSR or foreign countries prior to the invention's date of priority.

An invention has industrial application if it may be used in industry, agriculture, public health and other sectors of the country's national economy.

2. The object of an invention may be a device, method, substance, strain of microorganism, plant or animal cell culture, as well as the application of a previously known device, method, substance or strain for a new purpose.

3. The following are not acknowledged to be inventions:
scientific theories;
methods of economic organization and management;
conditional designations, schedules, or regulations;
methods of performing mental operations;
algorithms and computer programs;
projects and diagrams for planning structures, buildings and territories;
proposals concerning only the external appearance of products directed at the satisfaction of aesthetic requirements.

4. Inventions containing information whose announcement may be detrimental to USSR security must be made confidential in the order established by the USSR Cabinet of Ministers.

Article 2. Authorship of inventions

1. The author of an invention is considered to be the citizen by whose creative labor the invention was developed.

If an invention is developed by the joint creative labor of several citizens, all of them are considered to be co-authors of the invention. The order of exercising rights to an invention developed by joint authorship is determined by agreement between the co-authors.

2. Citizens who have not made a personal creative contribution to the development of the invention, and who have given the author only technical, organizational or material assistance or facilitated the formulation of rights to the invention and application of the invention are not considered to be its co-authors.

3. The author of an invention has the right of authorship, which is an inalienable individual right. Authorship to an invention is protected without a time limit.

Article 3. Legal protection of an invention

1. The right to an invention is protected by the state and is certified by a patent.

2. A patent on an invention certifies: The authorship of the invention, the priority of the invention and exclusive right of application of the invention.

3. The patent on an invention is effective for 20 years from the date of filing the application with the USSR State Patent Department (USSR Gospatent).

4. The scope of legal protection provided by the patent is determined by the formula for the invention. The description and blueprints serve only for interpreting the formula for the invention.

5. The effectiveness of the patent issued for a method of obtaining a product is extended also to the product directly obtained by this method.

In this case, the new product is considered to be obtained by the patented method if there is no proof to the contrary.

6. Legal protection on inventions is not granted to decisions which contradict public interests, humanitarian principles or morals.

Article 4. The patent holder (patentee)

1. The patent on an invention is issued:

to the author of the invention;

to a citizen or legal person (in the presence of an agreement) who has been designated by the invention's author in the patent application, or in the application submitted to the USSR Gospatent prior to listing of the invention in the USSR State Register of Inventions;

to the heir of the invention's author;

to the USSR State Inventions Fund, if the author transfers exclusive rights for application of the invention to the state.

2. A patent on an invention developed by a worker is issued to his employer, provided the appropriate agreement has been concluded between them. This agreement, along with the concession of the right to obtain a patent, determines the employer's responsibilities for ensuring conditions of a material, production, and social character (including pension and housing provisions) necessary for the effective creative activity of the worker, as well as the payment of a premium to him in case of development of the invention, as specified by the present Law. The agreement is concluded in regard to inventions developed as a result of solving specific problems in accordance with the tasks assigned to the worker. The author of such an invention has the right to a non-remunerative, non-exclusive license.

If the indicated agreement has not been concluded between the worker and the employer, the patent is issued to the author of the invention. The employer has the right to use this invention on the conditions specified in the licensing agreement.

Article 5. Exclusive right to application of the invention

1. The exclusive right to the application of the invention belongs to the patent holder.

2. The exclusive right to the application of the invention allows the patent holder to use the invention at his discretion, provided this does not violate the rights of other patent holders, as well as to prohibit the use of the invention in cases which contradict the present Law.

No one may use an invention on which a patent has been issued without the permission of the patent holder.

The patent holder must exercise the rights granted by the patent without detriment to the interests of the state and society.

3. The unsanctioned manufacture, application, import, offer for sale, sale, or other introduction into economic turnover of the product containing the patented invention, as well as the application of the method protected by patent, are viewed as a violation of the patent holder's rights.

Article 6. Actions which are not deemed a violation of the exclusive right of application of the invention

The following are not deemed to be a violation of the exclusive right to application of the invention:

The application of vehicles containing the invention protected by patents on board seagoing or river vessels of other countries, within the body of the vessel, in the machinery, rigging, mechanisms and other equipment when these vessels are temporarily or accidentally found in USSR waters, under the condition that the indicated means are used exclusively for the needs of the vessel;

application of vehicles containing inventions protected by patents in the design or operation of aerial, space or ground means of transport belonging to other countries,

or auxiliary equipment for these means, when the indicated means of transport are temporarily or accidentally located on USSR territory.

The indicated actions are not considered a violation of the exclusive right to application of the invention if the seagoing or river vessels, aerial, space, or ground means of transport belong to citizens or legal persons of countries which grant the same rights to citizens and legal persons of the USSR;

conducting scientific research or experiments on vehicles containing an invention protected by patent;

one-time preparation of medicines in pharmacies by doctor's prescription;

application of vehicles containing inventions protected by patent during natural disasters, catastrophes, epidemics and other extraordinary circumstances;

application of vehicles containing inventions protected by patents for private use without commercial purposes;

application of vehicles containing inventions protected by patents if these vehicles have been introduced into economic use by legal means.

Article 7. Right of prior use

Any citizen or legal person who, prior to the priority date of the invention protected by patent and independently of its author, has developed and used a principle similar to the invention on USSR territory or made the necessary preparations for its application, retains the right to continued uncompensated application without expansion of its scope.

The right of prior use may be transferred to a citizen or legal person only in conjunction with the production at which the application occurred or where the necessary preparations for it were made.

Article 8. Application for issuance of patent for invention

1. The application for issuance of a patent on an invention (henceforth - application for invention) is submitted to the USSR Gospatent:

by the author of the invention, including also in the case of requesting the patent in the name of the USSR State Invention Fund;

by the developer under conditions specified by Paragraph 1, Section 2, Article 4 of the present Law;

by a citizen or legal person to whom the author or developer has transferred on a contractual basis his right to submit the application, or to whom this right has passed in accordance with the inheritance legislation.

The application for invention may be submitted through the patent attorney registered with the USSR Gospatent.

2. If under the conditions specified in Paragraph 1, Section 2, Article 4 of the present Law the employer does

not file an application for invention within three months from the date of notification by the author of the invention's development, the author has the right to file the application and obtain the patent in his own name. The application of the invention by the employer in this case is implemented in the order specified in Paragraph 2, Section 2, Article 4 of the present Law.

3. Citizens or persons without citizenship living beyond the boundaries of the USSR, or foreign legal persons having permanent residence in foreign countries, or their patent attorneys, must conduct affairs on obtaining patents on inventions in the USSR and maintaining them in force through Soviet patent attorneys registered with the USSR Gospatent.

4. The application for invention must relate to one invention or a group of inventions associated with each other to such a degree that they form a single inventor's idea (requirement of unity of the invention).

5. The application for invention must contain:

the statement of patent issuance with indication of the author (co-authors) of the invention and the applicant, as well as their place of residence and whereabouts;

a description of the invention, describing it with completeness sufficient for implementation;

a formula for the invention which expresses its essence and which is fully based on the description;

blueprints and other materials, if they are necessary for understanding the essence of the invention;

a synopsis.

The application for invention (if the author is not seeking the patent in the name of the USSR State Invention Fund) must contain a document confirming the payment of duty in the established amount or proof of exemption from duty payment, or the grounds for reducing the amount of the duty payment.

The application for issuance of a patent must be submitted in Russian. Other documents of the application may be submitted in Russian or some other language. If the application documents are submitted in another language, a Russian translation must accompany the application. The Russian translation may be submitted by the applicant within two months after submission of the application containing the documents in another language to the USSR Gospatent.

The requirements for the documents accompanying the application for invention are set by the USSR Gospatent.

Article 9. Transfer of patent right and right to invention application

The right to a patent and the right to use an invention stemming from the patent may by agreement be transferred to a citizen or legal person. The agreement is

registered with the USSR Gospatent. An unregistered agreement is considered invalid.

Article 10. Priority of invention

1. The priority of invention is established according to the date of submission to the USSR Gospatent of the application containing the statement of patent issuance, the description and formula of the invention, the blueprints and other materials, if they are necessary for understanding the essence of the invention and if the description of the invention makes reference to them.

2. The priority of the invention may be determined by the date of submission of the first application for invention in a foreign country which is a participant in the Paris Convention on Protection of Industrial Ownership (conventional priority), if the application for invention is received by the USSR Gospatent within 12 months from the indicated date.

If by circumstances beyond the applicant's control the application with request of conventional priority could not be submitted within the indicated time, an extension may be granted, but no longer than two months.

An applicant who wishes to exercise the right of conventional priority must indicate this at the time of submission of the application for invention, or within two months from the receipt of the application by the USSR Gospatent, with enclosure of the necessary documents confirming the regularity of such a demand, or must present these documents no later than three months from the date of receipt of the application by the USSR Gospatent.

3. The priority of the invention may be established according to the date of submission of the earliest application to the USSR Gospatent by the same applicant describing this invention, provided the application through which such priority is requested is received no later than 12 months from the date of filing of the earlier application. In this case, the earlier application is considered rescinded.

The priority of invention may be established on the basis of several previously submitted applications with adherence to the indicated conditions for all of them.

The priority of invention cannot be established by the date of filing of an application in which an earlier priority has already been requested.

Article 11. Publication of the application for invention

1. The publication of information on the application for invention accepted for review, including the formula for the invention, is performed in the USSR Gospatent official bulletin after 18 months have elapsed from the date of priority.

At the request of the applicant, the publication of information on the application may be performed prior to this time.

The application information is not publicized if the decision to issue the patent is made prior to the publication, if the application is withdrawn, or if the patent application has been denied and the appeals possibilities have been exhausted. Publication of information on applications for invention and on granted patents is not performed in cases when such publication may be detrimental to state interests.

Any person has the right to acquaint himself with the materials of the application after information on it or on the patent has been published.

2. The author of the invention has the right to refuse being mentioned as such in the published application information.

3. An invention for which an application has been filed, from the date of publication of the application to the date of registration of the invention in the USSR State Register of Inventions, is granted temporary legal protection within the scope of the published formula. The temporary legal protection is considered invalid if the patent request is denied.

Article 12. Expert examination of the application for invention

1. The expert examination of the application for invention is performed by the USSR Gospatent and includes a preliminary and a patent expert evaluation conducted in accordance with the present Law and with the regulations established by the USSR Gospatent on the basis of this law.

The applicant has the right, at his own initiative or at the invitation of the state patent expert, to participate personally or through his representative in the examination of questions arising in the course of the preliminary and patent expert investigations.

2. During the expert examination of the application for invention, the applicant has the right, at his own initiative or upon request, to supplement, clarify, or correct the materials of the application without changing the essence of the invention.

Additional materials alter the essence of the announced invention if they contain indicators subject to inclusion in the formula of the invention which were absent in the initial materials of the application. Supplemental materials, in the portion by which they alter the essence of the declared invention, are not taken into consideration in review of the application and may be formulated by the applicant as a separate application.

If this application is filed within a three month period from the date the applicant receives notification that the supplemental materials cannot be considered, the priority of the invention is established according to the date of filing of the supplemental materials.

At the request of the expert committee, the supplemental materials must be presented within a two-month time

from the date this request is received. The deadline for submission of response to the request may be extended upon petition of the applicant, which must be submitted prior to expiration of this time. The time of performing the expert examination in the indicated cases is also extended accordingly.

If the applicant has violated the indicated deadline or left the request of the expert committee unanswered, the application for invention is considered withdrawn.

3. Upon violation of the requirements of Section 4, Article 8 of the present Law, or if other inventions are included in the initial materials, the applicant has the right to file a separate application (applications).

An application separated out at the initiative of the applicant must be submitted prior to issuance of the patent on the initial application.

If a separate application (applications) is filed within the established times and does not change the essence of the declared invention as compared with the content of the initial application, then the priority of the initial application is established for the separate application.

If the indicated conditions for the separate application are not fulfilled, the priority is established based on the date of its filing.

4. The application may be withdrawn by the applicant at his request, which must be received by USSR Gospatent prior to expiration of the term of publication of information on the application as specified in Article 11 of the present Law. If the decision to issue a patent is made prior to expiration of the indicated term, this request must be received prior to entry of the invention into the USSR State Register of Inventions.

5. Applications received by USSR Gospatent for review are not returned to the applicant.

Article 13. Preliminary expert examination of the application for invention

1. The preliminary expert examination of the application for invention is performed within a month's time from the date of its receipt by USSR Gospatent.

2. In the course of conducting the expert examination, the presence of all documents contained in the application for invention is verified and the question of whether the declared invention relates to objects protected by the present Law is resolved.

If necessary, the applicant may be asked to clarify the application within a period of two months from his receipt of such request. In this case, the time for conducting the expert examination is extended accordingly. If it is found that the declared invention does not relate to objects protected by the present Law, or if the necessary clarifications have not been introduced within the established time period, or if necessary documents missing on the date of filing the application for invention

are not supplied, then the application is not accepted for review, and the applicant is informed of this fact.

3. If the application for invention is accepted for review, the applicant is informed of the established priority of the invention, if he is not seeking conventional priority or priority by date of filing an earlier application or supplemental materials to it with the USSR Gospatent.

4. If he disagrees with the decision of the preliminary expert commission, the applicant has the right to file an appeal with the USSR Gospatent within a period of two months from receipt of such a decision. The decision on the appeal is made within a month from the day of its receipt.

Article 14. Patent expert examination of the application for invention

1. The patent expert examination of the application for invention is conducted upon conclusion of the preliminary expert examination.

In the course of the patent expert examination, the priority of the invention is established, if it has not already been established in the course of the preliminary expert examination, and the patentability of the invention is verified.

It is not considered a circumstance influencing the patentability of the invention if the disclosure of information relating to the invention by the applicant (author) or by any person who has directly or indirectly received this information from him, in which the essence of the invention has become generally accessible in the USSR or abroad, occurs no more than 12 months prior to the date of filing the application with the USSR Gospatent. In this case, the burden of proof of this circumstance lies with the applicant.

In establishing the innovative quality of the declared invention, all previously filed unrejected applications, except for the applications by the same authors, and all inventions which are acknowledged as being patentable in the USSR are taken into consideration from the date of priority, regardless of the date of publication of information about them.

2. If the applicant does not fulfill the requirement of unity of the invention (Section 4, Article 8 of the present Law), the patent expert examination is conducted only in regard to the principle which is indicated as the first in the invention formula, if the applicant does not respond to the expert commission's notification of violation of this requirement by filing a separate application (applications), or does not request a limited review of only one of the inventions or group of inventions contained in the application, corresponding to the requirement of unity.

3. The patent expert examination must be performed within 12 months from the date the applicant is notified that his application has been accepted for review. The

time of conducting the expert examination is extended in cases provided by Section 2, Article 12 of the present Law.

4. Changes in the invention formula are permitted at the initiative of the applicant, without expansion of the scope of legal protection and within the limits of invention's description in the initial application materials. Such changes may be introduced prior to the applicant's receipt of the patent expert commission's first request or its final decision, if such request is not sent. In this case, the time of performing the patent expert examination is extended accordingly.

5. Based on the results of the patent expert examination, the decision to grant or refuse the issuance of a patent is made.

The invention's applicant has the right to acquaint himself with the materials used in conducting the expert examination.

Copies of materials opposing the patent may be requested for two months following the date of decision on the patent.

6. If the applicant disagrees with the decision of the patent expert commission, he has the right to petition the USSR Gospatent to conduct a repeat expert examination within a three-month time from the day of receipt of the decision or the copies of materials contradicting the application which he has requested.

No duty is collected for filing a petition to conduct a repeat (second) expert examination.

The repeat expert examination is performed within two months from the day the applicant's petition is filed.

7. If in the course of the expert examination it is determined that similar inventions have the same priority date, then with the agreement of the applicants they are issued one patent.

If agreement cannot be reached, the patent on the invention is not issued until the question is resolved by the USSR Patent Court.

Article 15. Appealing the decision on the application for invention and restoring expired terms

1. In case of disagreement with the decision of the patent expert commission, within a three-month period from the day of receipt of the decision or the copies of materials contradicting the application which he has requested, the applicant has the right to file a substantiated complaint with the USSR Gospatent Patent Expert Commission Appeals Council (henceforth referred to as the Appeals Council). The complaint must be reviewed within four months from the day of its receipt. For complex applications the indicated time may be extended upon agreement with the applicant. The applicant has the right to participate, personally or through his representative, in the review of his complaint.

2. The decision of the Appeals Council may be appealed by the applicant to the USSR Patent Court within one year from the day of its adoption.

3. Deadlines specified by Section 2, Article 12; Sections 2 and 4, Article 13; Section 5, Article 14 and Section 1, Article 15 of the present Law, which have been missed by the applicant may be restored by the USSR Gospatent if (the applicant) can substantiate valid reasons and pay the duty.

The petition for restoration of deadlines may be filed by the applicant no later than 12 months after the day of expiration of the missed deadline.

Article 16. Publication of patent information

The USSR Gospatent publishes patent information within six months from the date of the invention's registration in the USSR State Register of Inventions. The published patent information indicates the author of the invention (provided he does not decline to be named as such), the patent holder, the name and formula of the invention, and other necessary information determined by the USSR Gospatent.

The patent holder has the right to petition the USSR Gospatent to correct accidental errors in the patent, provided this does not lead to expanded scope of its legal protection.

Article 17. Issuing the patent

The patent is issued by the USSR Gospatent after the invention is entered in the USSR State Register of Inventions.

The USSR Gospatent issues a certificate confirming authorship to the author of an invention who is not the patent holder.

Article 18. Voiding a patent

1. A patent on an invention may be fully or partially voided (considered invalid) during the entire term of its effectiveness in the following cases:

improper issuance of the patent as a result of violation of the requirements of patentability or presence of indicators in the invention formula which were absent in the initial application materials;

incorrect indication of author (co-authors) of the invention or patent holder on the patent.

2. Within six months from the date of publication of patent information, any citizen or legal person may file an objection against issuance of the patent to the Appeals Council on the grounds of violation of the requirements of patentability or presence in the invention formula of indicators which were absent in the initial application materials.

The objection to patent issuance must be reviewed within six months from the date of its receipt. The

person filing the objection, as well as the patent holder, may participate in its review.

3. After six months have elapsed from the date of publication of the patent information, or in case of disagreement with the decision of the Appeals Council, challenges to an issued patent or decision on its annulment are directed to the USSR Patent Court.

Article 19. Duties

1. Duties are paid for filing an application for invention, performing the expert examination, issuing the patent, maintaining it in force, as well as for performance of other legally significant actions associated with the patent. The list of actions for which duties are imposed, the amounts and terms of duty payment, as well as the grounds for exemption from duty payment, reduction of duty payment amounts, or refund of duty payments are determined by the USSR Cabinet of Ministers.

2. Duties are paid by the applicant, by the patent holder, as well as by other interested citizens or legal persons.

3. Duties are not charged for filing an application and conducting its expert examination when the author files an application containing a request for issuance of patent to the USSR State Inventions Fund.

If a patent belonging to an author is transferred to the USSR State Inventions Fund, the expenditures borne by the author in connection with duty payments for performing legally significant actions prior to issuance of the patent are refunded to him by the USSR State Inventions Fund from state budget funds.

In the case of issuance of a patent to the USSR State Inventions Fund, no duties are collected for its issuance and for maintaining it in force, as well as for performance of other legally significant actions in the future.

Article 20. Early termination of patent

A patent is terminated prior to expiration of its term:

by request of the patent holder filed with the USSR Gospatent;

for nonpayment of the annual duty for maintaining the patent in force within the established time;

if the patent is deemed invalid.

Article 21. Patenting an invention in foreign countries

1. USSR Citizens and legal persons have the right to patent their inventions in foreign countries.

2. Prior to submitting the application for invention to foreign countries, the applicant must file an application for this invention in the USSR and inform the USSR Gospatent of his intentions to patent the invention in foreign countries. If no prohibition is issued within a

three-month period from the date of filing the indicated announcement, the application for invention may be filed in foreign countries.

The USSR Gospatent may in necessary cases allow the patenting of inventions in foreign countries prior to filing application for them in the USSR.

3. Expenditures associated with patenting an invention in foreign countries are borne by the applicant, or by agreement with him, some other citizen or legal person.

II. Utilization of Inventions

Article 22. Utilization of the invention

1. Utilization of an invention is considered to be the introduction into economic turnover of a product manufactured through the application of the patented invention, as well as through the application of a method protected by patent.

A product is considered to be manufactured with the utilization of a patented invention, and a method protected by patent is considered to be applied if it utilizes each indicator of the invention included in an independent point of the formula, or an indicator equivalent to it.

2. Relations on the utilization of an invention whose patent is held by several persons are determined by agreement between them. In the absence of an agreement, each of them has the right to use the invention at his discretion, except for granting a license or giving up the patent.

3. Any citizen or legal person wishing to use the invention must conclude a license agreement with the patent holder.

Article 23. License agreement

1. By a license agreement, the patent holder (licensor) transfers the right for use of the invention to another person (licensee), and the latter assumes the responsibility of making payments to the licensor as specified in the agreement and performing other actions specified in the agreement on exclusive or nonexclusive license.

In the case of exclusive license, the licensee is granted the exclusive right for use of the invention within the limits stipulated by the agreement, with the licensor retaining the right to use the invention in the portion not transferred to the licensee. In the case of a nonexclusive license, the licensor, while granting the licensee the right to use the invention, retains all rights to the invention which stem from the patent, including the right to grant licenses to third parties.

2. If the patent holder cannot use the invention due to the fact that it utilizes another invention patented by another citizen or legal person, he has the right to demand permission from the latter for use of this invention under the conditions specified in the agreement.

Article 24. Open license

A patent holder may apply to the USSR Gospatent for official publication of an announcement granting any person the right to use the invention (open license). In this case, the duty for maintaining the patent in force is reduced by 50 percent, beginning with the year following the year of publication of such an announcement.

A person who wishes to use the indicated invention must conclude an agreement on payments with the patent holder.

Article 25. Utilization of an invention in the interests of the state and compulsory license

1. In the interests of USSR defense and public order, the USSR Cabinet of Ministers has the right to allow the use of an invention without consent of the patent holder, with payment of monetary compensation to him which is comparable to the market price of the license.

Disputes regarding the amount of compensation are resolved by the USSR Patent Court.

2. In case of disuse or insufficient application of the invention on USSR territory within a period of five years from the date of entry of the invention into the USSR State Register of Inventions, after such time has elapsed, a person who is ready and willing to use the invention but who cannot conclude a license agreement with the patent holder may petition the USSR Patent Court to grant him a compulsory nonexclusive license with indication of the limits of use of the invention, the amount, term, and order of payments.

The indicated license is granted if the patent holder cannot prove that the disuse or insufficient application of the invention were conditioned by valid reasons.

Article 26. Property responsibility for patent violation

1. Any citizen or legal person who uses a patented invention in contradiction of the present Law is considered a patent violator.

2. At the demand of the patent holder, the patent violation must cease and losses which he has incurred as a result of illegal use of the invention must be repaid to him.

Claims against the patent violator may be filed also by the holder of an exclusive license, if the patent holder has not taken appropriate measures against the violator within a two month period from the day the patent violation was discovered.

Article 27. Utilization of declared invention during the period of its temporary legal protection

1. During the period for which the temporary legal protection remains in force, the applicant has the right to use the declared invention, provided such use does not violate the rights stemming from existing patents.

2. A citizen or legal person using a declared invention during the effective period of its temporary legal protection pays the patent holder a monetary compensation after he has received the patent on the invention. The amount of compensation is determined by agreement of the parties.

Article 28. State incentives for use of the invention

1. The profit (income) and currency receipts received by a patentholding enterprise from the use of the invention in its own production, as well as from the sale of licenses on it, is not taxable for a period of five years from the date the invention was first used or the license sold, within the limits of patent's term.

2. The profit (income) and currency receipts received by an enterprise from the use of the invention as a result of the purchase of a license is not taxable for a period of five years the time the invention was first used.

3. At the decision of the USSR Cabinet of Ministers and the republic governments, the terms indicated in sections 1 and 2 of the present article may be extended in regard to inventions having important national economic significance and requiring a longer time for their assimilation in production, and primarily those relating to the sphere of ecology and medicine.

4. The profit (income) and currency receipts received by an enterprise or new production line created especially for the manufacture of new technology using the patented invention are not taxable for five years from the date of operational introduction of the enterprise or the new production line.

5. The savings on estimated allocations obtained by a state budget organization from the utilization of inventions, as well as the income from license agreements, remain entirely at the disposal of the state budget organization for five years from the date the invention is first used or the license sold.

Article 29. State order for development and delivery of new technology containing the invention

When an enterprise is given a state order for the manufacture of products utilizing inventions whose patents belong to other enterprises or citizens, as well as to foreign patent holders, the agency issuing the state order makes provision for obtaining the licenses, allocating the necessary financial means for this purpose.

Article 30. Financing invention activity at enterprises and state budget organizations

1. Invention activity at enterprises is financed at the expense of (the enterprise's) own funds.

If the indicated funds are insufficient, bank credits or monies from innovation funds may be used, and if necessary—budget allocations.

The state budget organization finances inventive activity at the expense of monies allocated for the maintenance of this organization, savings (income) from the use of the inventions which remain at its disposal in accordance with Section 5, Article 28 of the present Law, as well as bank credits and monies from centralized funds, and if necessary—from additional budget allocations.

2. Enterprises may create an incentive fund for inventive activity, whose monies are not included in the sum of funds directed for consumption and subject to taxation.

Article 31. USSR State Inventions Fund

The USSR State Inventions Fund exercises the rights and responsibilities of the patent holder in regard to inventions on which exclusive rights of use have been transferred to the state, and takes measures to ensure their widespread application.

The USSR State Inventions Fund finances its activities through income from the sale of licenses on inventions whose patents are held by the USSR State Inventions Fund, through state budget funds, as well as through voluntary contributions from enterprises and citizens.

The USSR State Inventions Fund does not have the right to grant the patents belonging to it to third parties without the consent of the inventions' authors.

The USSR State Inventions Fund performs its activity on the basis of the Charter ratified by the USSR Cabinet of Ministers.

Article 32. Compensation to the author of an invention who is not the patent holder

1. Compensation for the use of an invention during the effective term of its patent is paid to the author on the basis of an agreement with the employer who obtained the patent in accordance with Section 2, Article 4 of the present Law, or by his legal successor, in the amount of no less than 15 percent of the profits (appropriate portion of the income) received annually by the patent holder from the invention's application, and no less than 20 percent of the income from the sale of licenses, without limitation of the maximal amount of compensation.

Article 32. Compensation to the author of an invention who is not the patent holder

1. Compensation for the use of an invention during the effective term of its patent is paid to the author on the basis of an agreement with the employer who obtained the patent in accordance with Section 2, Article 4 of the present Law, or by his legal successor, in the amount of no less than 15 percent of the profits (appropriate portion of the income) received annually by the patent holder from the invention's application, and no less than 20 percent of the income from the sale of licenses, without limitation of the maximal amount of compensation.

Compensation for the use of an invention whose useful effect is not expressed in profit or income is paid to the author in an amount of no less than two percent of the share of production cost of the product (work and services) accounted for by the given invention.

The percentage amount is determined by the enterprise upon agreement with the author.

2. Compensation to the author of an invention whose patent has been issued to the USSR State Inventions Fund is paid by the USSR State Inventions Fund in an amount determined by agreement with the author, but no less than 20 percent of the income from the sale of the license on the given invention.

3. Compensation is paid to the author no later than three months after completion of each year in which the invention was used, and no later than three months after receipt of income from the sale of the license.

4. If an invention whose patent is issued to a Soviet enterprise or to the USSR State Inventions Fund is sold abroad, including the sale of licenses and supply of the product for export, the author's compensation may, upon his request, be paid in foreign currency.

5. If the patent on an invention has been issued to an enterprise, the patent-holder enterprise must pay an incentive bonus to the invention's author within a month's time from the date of patent issue. This bonus is not taken into consideration in subsequent payments. The amount of the incentive bonus on the invention (regardless of the number of co-authors) must be no less than the average monthly wage of a worker at the given enterprise.

6. Information on the use of the invention and compensation paid is entered by the patent holder into the invention's authorship certificate.

Article 33. Responsibility for overdue payment of compensation

The patentholder who is guilty of overdue compensation must pay the author a fine in the amount of 0.04 percent of the amount due every day the payment is overdue.

Article 34. Compensation to persons aiding in the development and utilization of the invention

1. Enterprise patentholders and enterprise-licensees pay a compensation to persons (including those who do not work at the given enterprise) who aided in the development and application of the invention, regardless of other forms of payment.

2. The sum of the compensation paid for joint participation in the development and application of an invention by all persons is set in the amount of no less than 30 percent of the profit (appropriate portion of the income) received by the enterprise from the use of the invention. For an invention whose useful effect is not expressed in profit or income, compensation is paid in the amount of

no less than four percent of the portion of production cost of the product (work, services) obtained as a result of the given invention, and paid out within a period of three years from the date the invention is first used.

III. Labor and Other Rights and Privileges of Inventors

Article 35. Labor rights and privileges

1. The author has the right to participate on a contractual basis in work on preparing the invention for application (in the development of technical documentation, manufacture and testing of the product prototype, organization of production).

2. In order to participate in preparing the invention for application, the author may for a time be fully or partially excused from performing his primary work duties, and paid no less than the average wage he received. If this work is performed outside the area of his permanent employment, a labor contract is concluded with the author, with wage payment depending on the complexity of the job performed.

3. The amount of compensation for additional expenses incurred by the invention's author and associated with his participation in work on the preparation of the invention for application away from his permanent place of residence is established by agreement with the interested enterprise.

4. The author of an invention who has been temporarily excused from his primary work duties retains his position, work seniority, seniority in his specialty, vacation rights, and other rights and privileges established at his place of permanent employment.

5. In case of cut-backs in the number of enterprise personnel, inventors have a priority right to retain their jobs.

6. If lower valuations are introduced at the enterprise as a result of the invention's application, the labor wage of the author, as well as the labor wages of workers participating in the preparations for application of this invention, are paid at the former rates for a period of six months from the day the invention is first introduced.

Article 36. Housing privileges

The authors of inventions which are utilized have the right to additional living space in the amounts established by effective legislation.

Article 37. Other rights and privileges of inventors

1. The author of an invention, upon request at any stage of review of the application for invention, has the right to have the invention named after him or to give it a special name.

2. Republic legislation may establish additional rights and privileges of inventors.

Article 38. Transfer of invention author's (patent holder's) rights by inheritance

The right to file an application and the patent on the invention, the exclusive right to use the invention, as well as the right to compensation and income from the utilization of the invention are transferred by inheritance.

IV. Organizational Principles of Legal Protection of Inventions and Defense of the Rights of Inventors and Patent Holders**Article 39. USSR State Patent Department**

The USSR Gospatent provides for the functioning and management of a unified patent system throughout the country.

The USSR Gospatent accepts applications for inventions for review, conducts expert examinations on them, issues patents which are effective throughout the entire USSR territory, within the limits of its competency implements control over adherence to legislation in the sphere of inventions, generalizes practical experience in its application, interprets the statutes of the present Law, provides methodological aid and services on the indicated questions to interested enterprises, citizens, as well as public organizations of inventors, implements training of cadres of patent specialists, performs patent information work, and performs state certification and registration of patent attorneys.

Article 40. Enterprises, organizations, institutions

Enterprises, organizations, and institutions, regardless of their form of ownership of means of production and other property, create the necessary conditions for the development of inventive creativity and for the utilization of inventions, organize their own patent services if necessary, and provide comprehensive aid for the activity of public inventors' organizations.

Article 41. Public organizations

The All-Union Society of Inventors and Innovators, engineering and scientific-technical societies and other public organizations provide inventors with organizational, material, technical and other support, and also help inventors in the defense of their rights and legal interests.

Article 42. Agencies reviewing disputes associated with invention activity

Disputes associated with invention activity are reviewed by rayon (city) people's courts, courts of autonomous okrugs, courts of autonomous oblasts, city, oblast, and kray courts, republic Supreme Courts, the USSR Supreme Court, the USSR Patent Court, and organs of the state board of arbitration.

Disputes arising in connection with the realization of labor rights of authors of inventions are reviewed in accordance with the legislation on the order of reviewing labor disputes.

Article 43. Organization and competency of courts reviewing disputes associated with invention activity

1. Rayon (city) people's courts, courts of autonomous okrugs, courts of autonomous oblasts, city, oblast, and kray courts, republic Supreme Courts, and the USSR Supreme Court review disputes associated with invention activity, with the exception of disputes related to the competence of the USSR Patent Court, and in the order established by civil-judicial legislation.

The following disputes are specifically related to the competency of the indicated courts:

disputes over authorship (co-authorship) of an invention;

disputes in determining the patent holder;

disputes over violation of the exclusive right to use invention and other property rights of the patent holder stemming from the patent on the invention;

disputes regarding the conclusion and fulfillment of an agreement on use of the invention, including on the application of the invention by an enterprise when the patent holder is an employee of the enterprise;

disputes over monetary compensation for the use of the invention during the period of its temporary protection, and the amounts of this compensation;

disputes over seeking compensation for the use of an invention;

disputes over distribution of compensation for the use of the invention between co-authors;

disputes over the right of prior use.

2. The types of disputes reviewed by the USSR Patent Court, as well as the organization and order of its activity, are determined by the USSR Law: "On the USSR Patent Court".

Article 44. Responsibility for violating rights of authors of inventions

Assuming authorship, forced co-authorship, publication of the essence of the proposed invention prior to filing of the application for invention without the author's consent are all subject to criminal responsibility in accordance with the effective legislation.

Article 45. Responsibility for violating legislation in the field of invention

1. Responsible parties bear criminal, disciplinary or material responsibility in accordance with the effective

legislation if they are guilty of a careless or unconscientious attitude toward their responsibilities in formulating the application for invention, as well as in utilizing the invention and paying out compensation to the authors of the invention.

2. A state patent expert bears disciplinary responsibility for publicizing the essence of an application prior to its publication (except for the case provided by Paragraph 4, Section 1, Article 14 of the present Law), if by its character this action does not entail criminal responsibility in accordance with effective legislation.

3. Officials and employees of the USSR Gospatent, during their period of service and for a year after its termination, do not have the right to file applications for invention, assume the right of patent directly or indirectly, or formulate applications for invention for someone else.

Article 46. Public control over adherence to legislation in the field of inventions

The All-Union Society of Inventors and Innovators implements public control over adherence to legislation in the field of inventions.

V. Concluding Principles

Article 47. USSR and republic legislation on inventions

Legislation on inventions consists of the present Law, other USSR legislative statutes, and the legislation of republics on questions relating to their administration.

Article 48. Rights of foreign citizens, persons without citizenship and foreign legal persons

Foreign citizens, persons without citizenship and foreign legal persons exercise the rights provided by the present Law and other USSR and republic legislative statutes dealing with inventions on par with USSR citizens and legal persons, if not otherwise specified by the present Law and other statutes of effective legislation.

Article 49. Rights of enterprises, organizations and associations with foreign investments created in the USSR

1. The statutes of the present Law are applicable in regard to the enterprises, organizations and associations with foreign investments created in the USSR.

2. The principles provided by Section 2, Article 4 and Section 2, Article 8 of the present Law are applicable in regard to enterprises, organizations and associations indicated in Section 1 of the present article, if not otherwise specified in their charter documents.

3. Enterprises, organizations and associations indicated in Section 1 of the present article make independent decisions on foreign patenting of inventions developed in the USSR by their workers, under the condition that patent applications for these inventions be filed in the USSR prior to filing in the foreign country.

Article 50. International agreements

If USSR international agreements have established different regulations than those contained in the present Law, the regulations of the international agreement are applied.

Decree Enacting Inventions Law

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[Decree signed by USSR Supreme Soviet Chairman A. Lukyanov on 31 May, 1991: "USSR Supreme Soviet Resolution on Enactment of the USSR Law: 'On Inventions in the USSR'"]

[Text] The USSR Supreme Soviet hereby resolves:

1. To enact the USSR Law: "On Inventions in the USSR", effective 1 July 1991.

Henceforth, until USSR and republic legislation is brought into line with the USSR Law: "On Inventions in the USSR", the effective statutes of USSR and republic legislation are applicable in so far as they do not contradict this Law.

2. The USSR Law: "On Inventions in the USSR" is applicable to legal relations arising after enactment of the Law.

Applications for invention, as well as objections, complaints and protects whose cases have not been concluded prior to 1 July 1991 will be reviewed in the order established by the Law, with the application of criteria of protectability of the invention provided by previously effective legislation.

3. For applications for issuance of copyright on an invention which are currently under review or which at the moment of enactment of the Law have been granted the decision to issue copyright certification, as well as for copyrights on inventions for which the 20-year term from the date of application has not elapsed by 1 July 1991, the USSR State Patent Department (USSR Gospatent) will issue a patent at the request of the author (authors) in conjunction with the applicant (will exchange the copyright certificate for a patent for the remaining period). [This patent will be issued] in the name of the author or some other citizen or legal person (under condition of their consent) who will be specified in the petition, with payment of the appropriate duties, or in the name of the USSR State Inventions Fund.

If agreement cannot be reached between the authors or between the author (authors) of the invention and the applicant, the dispute will be reviewed in a judicial order.

In the absence of such a petition prior to 1 July 1991, previously issued copyright certificates remain in effect, and applications for which copyright certificates were

not issued by the date of enactment of the present Law will be issued patents in the name of the USSR State Inventions Fund.

4. Enterprises, organizations and institutions which prior to 1 July 1991 introduced the use of inventions for which copyright certificates had been issued or for which applications for issuance of copyright certificates were filed, retain the right of continued use of these inventions without having to conclude license agreements. The payment of compensation to the authors by these enterprises, organizations, and institutions is performed in accordance with the previously effective legislation.

The same order of payment of compensation extends also to the authors of inventions protected by copyrights and used after 1 July 1991, for which petitions to exchange the copyrights for patents were not received prior to 1 July 1992.

5. Patents for inventions issued prior to 1 July 1991 whose terms have not expired are equated by legal status to the patent issued on the basis of the USSR Law: "On Inventions in the USSR".

6. It is recommended that the republic Supreme Soviets bring the republic legislation into line with the USSR Law: "On Inventions in the USSR".

7. The USSR Cabinet of Ministers must:

submit proposals to the USSR Supreme Soviet on bringing USSR legislative statutes into line with the USSR Law: "On Inventions in the USSR";

ensure the adoption of normative statutes provided by the USSR Law: "On Inventions in the USSR", simultaneously with the enactment of the Law;

bring the resolutions of the USSR Government into line with the USSR Law: "On Inventions in the USSR" and provide for the review and repeal by USSR ministries, state committees and departments of their normative statutes which contradict the indicated Law.

8. The USSR Supreme Soviet Committee on Science and Technology, the USSR Supreme Soviet Committee on Legislation and Law and Order, the USSR Supreme Soviet Committee on Industry and Energetics, and the USSR Supreme Soviet Committee on Transport, Communications and Informatics must be assigned the following tasks:

In conjunction with the USSR Cabinet of Ministers, developing the question of establishing the optimal amounts of duties, preferential payments, and possibilities of granting extensions until the receipt of income from the use of the inventions;

In conjunction with the USSR Gospatent, generalizing practical experience in application of the present Law and informing the USSR Supreme Soviet of the results by 1 August 1992.

Supreme Soviet Passes Law on Inventions, Patents

*917A0151A Moscow IZVESTIYA (Union edition)
in Russian 3 Jun 91 p 1*

[Article by IZVESTIYA correspondents A. Stepovoy and S. Chugayev: "The Law on Inventions in the USSR Has Been Passed"—first paragraph is IZVESTIYA introduction]

[Excerpt] IZVESTIYA parliamentary correspondents A. Stepovoy and S. Chugayev report from the Kremlin.

The session participants devoted the entire second part of the plenary meeting of 31 May to the discussion in the second reading of the draft of the Law on Inventions in the USSR. Deputy V. Bolbasov, who spoke on behalf of several permanent formations of the parliament, noted that after the first reading several hundred comments and suggestions, a third of which were adopted, were considered.

In the new version of the draft the legal, economic, and organizational bases of the protection of inventions under the conditions of the market economy and of the equality of the various forms of property were strengthened and the stimuli for the development and extensive use of inventions, first of all in the sphere of ecology and medicine, were increased. The amendments concerned the provisions of the material stimulation of inventors, the rights and preferences for enterprises that use inventions were expanded.

Deputy V. Bolbasov stressed that the articles, which concern the conclusion of license agreements and the use of inventions in the interests of the state, had been brought in line with world practice. The provisions of the draft law, which affect the rights of patentees and govern the taking of effect of the agreement on trade relations between the USSR and the United States, had also been made more precise.

Deputy G. Novikov spoke as the main opponent of this legal act. He directed the attention of his colleagues to the fact that after the first reading the draft law had changed its title (earlier it was called "On Invention in the USSR"), but its very content had remained untouched. Deputy G. Novikov was convinced that the content of the document does not correspond to its title, while 36 of the 53 articles do not have a direct bearing on invention. He was opposed to the introduction of the USSR Patent Court, which is not envisaged by the Basic Law of the country. I. G. Novikov said in conclusion, will not block this draft law, but I do advocate the necessity of a law on the protection of inventions.

Many arguments of Deputy G. Novikov seemed convincing and deserving of the attention of the colleagues. However, in opening the debate, Chairman A. Lukyanov considered it necessary to note that in two years the union parliament had passed more than 100 laws. Yes, he said, we "baked" them quickly, realizing perfectly

well that many of them with time will be substantially revised, since they are intended for the transition period to the market. We, A. Lukyanov repeated his favorite reply, did not make the commitment that with time we will grow wiser.

During the debate the union parliament members spoke in favor of the need to establish in the country the Patent Court and a state patent department. However, the Patent Court will acquire legal rights after the appropriate draft law has been approved and the necessary amendments to the Constitution of the country have been made.

After the short debate the law was passed. [passage omitted]

Bolbasov's February Appeal for Passage of Patent Law

917A0152A Moscow IZOBRETEL I
RATSIONALIZATOR in Russian No 2, Feb 91 p 1

[“Abridged version” of speech of V. S. Bolbasov, member of the USSR Supreme Soviet, at the Fourth Congress of USSR People’s Deputies, under the rubric “The Fourth Congress of USSR People’s Deputies”; date not given: “Why Are We Delaying?”—first paragraph is IZOBRETEL I RATSIONALIZATOR introduction]

[Text] The critical appraisal by the people of the effectiveness of the legislative activity of the USSR Supreme Soviet is no secret for anyone. The laws passed by it, unfortunately, either are skidding or do not work at all, and this not only is striking a serious blow to the prestige of the USSR Supreme Soviet as a legislative body, but is also undermining the faith of the people in the ability of organs of state administration to accomplish the tasks on bringing the country out of the economic and sociopolitical crisis.

It is necessary to state frankly that thus far we do not have an integral concept of legislation. In connection with this permit me to express the following opinions on this issue. We need to halt the improvisation on the theme of legislation and to take as an example the developed foreign models. If we take these models as our guide, first of all we should concentrate our efforts on functional economic laws. Then on laws that regulate sociocultural, training, and educational processes. And, finally, on laws that govern the information processes of society. But economic laws, with which, undoubtedly, it is necessary to group, as in all civilized countries of the world, laws on industrial property, should become the priority package of laws. For nearly two years we have been dragging out their passage under various pretexts.

For example, the most important one of them is the patent law or the Law on Invention in the USSR.... In the end I would like to remind you of the obligations that were undertaken by our country during the signing, for example, of the Soviet-American trade agreement, in conformity with which most favored nation treatment in

trade relations with the United States can be accorded us only on the condition of the introduction of the effective legal protection of objects of intellectual and industrial property.

So why are we delaying? Is it the wrong internal economic and political situation? But excuse me, in June 1812, when the first domestic patent law was passed, in June 1919, when the first Soviet Decree on Inventions was adopted, and in 1924 and 1941, when the corresponding enforceable enactments on legislation were also passed, we were under no less difficult conditions.

We are talking about the need to change over to a market. However, here one should probably take into account the more than century-old experience of the development of market relations in civilized countries. But this experience testifies that only if an efficient system and the legal protection of industrial property exist is it possible to ensure the progress of society, the progressive nature of its socioeconomic development....

It is obvious to everyone, it would seem, that the success of the radical economic reform in many respects depends on the effectiveness of the use of the scientific and technical potential of the country. However, today it is possible to appraise the state of affairs in the indicated area as critical. In the 1980's the technical level of developments decreased sharply. The share of developments, which exceed the world level, decreased by a factor of 2.2, while the share of those corresponding to this level decreased by a factor of 1.5. The share of developments of industrial sectors, which contain inventions, did not exceed 40 percent. The situation with the development of prototypes of new equipment is analogous. In the late 1980's 1.7-fold fewer of them were developed than on the average in a year during the period from 1976 to 1980.

The negative trend in the sphere of scientific and technical progress as a whole is also confirmed by the trends in the development of domestic invention. In the 1980's less than one-third of all the inventions developed and registered in the country were annually used for the first time in the national economy. In 1989 this indicator had decreased to the level of the 1970's—17,700 inventions, which is equivalent to the loss by the national economy of more than 1 billion rubles. The creative activity of scientific, engineering, and technical personnel declined sharply. This is also evident from the decrease of the number of submitted applications for inventions. In the last two years alone their number decreased by 50,000. Toward what are we gravitating?

...Back in 1947 an American encyclopedia noted that seven-eighths of the U.S. processing industry depended in one way or another on the patent system. According to the results of a survey, which was conducted in the 1980's by the Japanese society for the promotion of the development of machine building, the executives of leading industrial firms of this country put in first place among the factors, which promote to the development of

the economy, the patent system (30 percent of those surveyed), in second place—a tax benefit (14 percent), and only in third place—state subsidies (13 percent of those surveyed).

...Now much is being said about the improvement of the structures of administrative organs. The State Committee for Inventions and Discoveries attached to the USSR State Committee for Science and Technology is one such organ. In this connection it is necessary to note that in the history of our state the results of the activity of similar structures attached to the State Planning Committee, to the same State Committee for Science and Technology, and to various people's commissariats and ministries are well known. In all the cases the result was the same—the sharp decrease of the creative activity of specialists of the national economy and, as a consequence of this, the decline of the technical level and competitive ability of domestic products.

We are now also continuing to reinvent the wheel. But the same world experience (for example: Japan and the United States) shows the optimum version of the solution of this problem—the establishment of a department for the protection of intellectual and industrial property, a patent department, which is independent of any other administrative structures, with its subordination directly to the government, as in Japan, or to the congress, as in the United States. But we are continuing to repeat the old mistakes.

In conclusion I ask you, respected deputies, to make the decision to consider without delay the draft of the Law on Invention in the USSR. This is not just our opinion, this is the demand of hundreds of thousands of inventors, scientists, engineers, and other specialists of the national economy.... One should bear in mind that legal guarantees on the protection of the most valuable public property, which the invention is, will simultaneously make it possible to have a substantial influence on the solution of a number of other serious problems which are connected, in particular, with the "brain drain," with the attraction to the national economy of foreign investments, and with the increase of the competitive ability of domestic products on the domestic, European, and world markets.

...Given the general shortage of not only currency, but also industrial goods we have a commodity, of which there is an abundance today—this is ideas and developments of scientists who are inventors. Most likely no one will deny that in the current rational world the might of a state is determined not by the strength of its military muscles, not by the vastness of territories, not by the wealth of mineral resources, and even not by the gold reserve, but by the scientific and technical potential. For a substantial improvement in the economy it would be sufficient to introduce the inventions and developments of scientists, which for years have been gathering dust in the folders and desks of bureaucrats of various ranks.

And a final thing. For the purposes of improving the moral and psychological climate in the country it is necessary to find immediately reserves for the provision of a subsistence wage for all citizens, and first of all for the destitute and poor, for people, who live in the regions of a disaster, on the territories, which suffered from the Chernobyl catastrophe, and in the region of the Aral Sea, for students, servicemen, and retirees. And it is necessary to rehabilitate all the illegally dismissed inventors and scientists: Romanenko, Mazanov, Yemelyanov, Kaban, Gartsevich, and many others, with full compensation of the material damage that has been caused them.

Alternatives to State Committee for Inventions Sought

917A0153A Moscow IZOBRETATEL I RATSIONALIZATOR in Russian No 1, Jan 91 pp 28-29

[Article by Yu. Makarov under the rubric "Initiatives": "An Alternative Committee of Inventions Has Been Organized on a Joint Stock Basis"—first five paragraphs are IZOBRETATEL I RATSIONALIZATOR introduction]

[Text] You can register everything you consider necessary, with a few exceptions.

Yu.A. Lebedev, chairman of the Innovation Council attached to the chairman of the RSFSR Council of Ministers:

"Back in 1918 in accordance with Lenin's decree the rights to inventions, to their industrial use, and to their sale abroad were transferred to the state. For this the state guaranteed the legal protection of inventors and took in its own hands concern for inventions. And we constantly sense the results of such 'concern.'

"The monopolism of the State Committee for Inventions and Discoveries had the result that the state influenced the creative activity of inventors by a single means—it decreased it with its own concerns.

"Therefore, we probably need private patent agents who work under contract with the All-Union Scientific Research Institute of State Patent Examination. Private patent bureaus are needed, extradepartmental introducing firms, which would finance the introduction of inventions and would strive to sell ideas and inventions profitably on the international market, are needed."

Of the entire crop harvested in our country more than 30 percent is lost.... In the production of steel we hold first place in the world, but 40-50 percent rusts and is scrapped.... Need one be surprised that of our entire scientific potential scarcely 10-15 percent of the scientific works are implemented, 90-95 percent of the results of the labor of innovators are rejected without examination or are not offered by themselves to developers?

At one time the report that useful trifles, which are published in NAUKA I ZHIZN, enabled a Japanese

entrepreneur to earn in a few years \$37 million, stunned everyone. While in the USSR, the honest businessman from Japan came to the Society for Knowledge, intending to pay royalties of \$1 million for the used ideas. But he never found the authors, who had helped him to earn the enormous amount of money. But if they had had "safe conducts," he would not have had to search long.

About 75,000 applications for inventions and discoveries a year are recorded in the system of the State Committee for Inventions and Discoveries. But if you consider that several large scientific research institutes submit annually up to 100 applications, it will turn out that inventors working on their own and folk skilled craftsmen account for scarcely more than 500 registered inventions a year. That is, precisely the 5 percent that were spoken about above. Thus, the preliminary examination of the All-Union Scientific Research Institute of State Patent Examination with the bulldozer of its requirements sent to the dump approximately 9,500 applications of inventors working on their own.

And it is not surprising. It is difficult for an untrained person to draw up an application in accordance with the requirements of enforceable enactments.

Advice on patent law is made available by organizations of the All-Union Society of Inventors and Efficiency Experts only in large cities, rural machine operators, servicemen, students of vocational and technical schools and teknikums, secondary school teachers, residents of remote regions, personnel in service afloat of the maritime and river fleet, and so on in practice are deprived of the opportunity to register an application for an invention and especially to conduct skilled correspondence with regard to it (for up to five years). So that it is difficult to establish even the priority of an invention.

The All-Union Scientific Research Institute of State Patent Examination does not accept at all for consideration social inventions, methods and a system of the organization of the management of the economy, designs and layout diagrams, scientific theories, basic assumptions of science, methods and systems of education, training, and instruction, methods and systems of information science, document handling systems, software systems, and methods of analyses, design, and scientific developments. Computer programs, which have become particularly widespread in the past decade, are not accepted. But they concern electronic games, methods of analysis, design, and so on.

Useful advice, devices for the repair of apartments, proposals on the preservation of food products and on the improvement of work on garden plots, and various household gadgets and devices, for example, for the cleaning and storage of clothing and shoes, the storage of cassettes, diskettes, tools, and so on are also not accepted.

for consideration. These are useful "gadgets," IZOBRETEL I RATSIONALIZATOR and other popular journals publish them, but there is no profit for the authors from this.

Thus, the State Committee for Inventions and Discoveries is using only a negligible portion of the creative potential of inventors and folk skilled craftsmen, their aptitude, and their natural sense of what is new.

In about the last two years several tens of different committees and funds of social inventions, consultation bureaus, patent information cooperations, and all kinds of centers of patent services have been established, for example, more than 2,500 proposals in essentially six months were received by the Soviet-American Cultural Initiative Fund, which was organized by American millionaire D. Soros. On the basis of the obtained data the All-Union Bank of Ideas, of which not more than 10 have been realized, was established.

The Fund for the Promotion of the Activity of Inventors and Efficiency Experts, the FID (IZOBRETEL I RATSIONALIZATOR, No 8, 1989), the Moscow Pulsar Cooperative (IZOBRETEL I RATSIONALIZATOR, No 1, 1990), which offers assistance to inventors in reviewing rejections of the All-Union Scientific Research Institute of State Patent Examination on the applications for inventions, which they have, and organizations, which conduct competitions, found banks of ideas, and so on, were established in Moscow in 1989.

However, it should be borne in mind that the author does not receive for a proposal, which has been sent to these organizations, any certificate, which attests his authorship, and at times also a message of thanks for participation in the competition or in the formation of a bank of ideas and even notification of the receipt of his proposal.

Proposals, which have been sent in from the entire territory of the USSR, in practice become the property of the cooperative, information center, or fund of inventions. Their subsequent fate is not always well-defined. However, one must not treat all cooperative organizations with distrust. But who can prohibit a simple cooperative member, for example, to sell all the proposals he has to some Japanese firm for currency or to turn all the received letters into waste paper or in a few years to use the most valuable proposals for the submission of applications for an invention on behalf of his own organization?

Of all the received proposals one idea out of hundreds is accepted by the indicated organizations for introduction. The most effective one and for the most part one with the immediate assurance of a profit. The remaining ones with a large economic impact (and, perhaps, ingenious ones), but ones that require expenditures, as a rule, are shelved. The proposals, which pertain to a field of technology, which is unfamiliar for the expert, will also go there. For example, if at a cooperative information center there are specialists only in construction and

construction engineering, they will hardly consider carefully applications regarding aircraft, computer technology, or the production of dairy products. To have experts in all the existing directions of science and technology means to establish a new All-Union Scientific Research Institute of State Patent Examination.

What does the inventor need? First, the registration of the priority of their invention. The most reckless creators of new equipment have invented an amateur method of confirming their priority. For this purpose they mail to themselves a postcard with a statement of the essence of the invention.

Second, the deposition of the materials of the application until "better times." Until the obtaining of research results, until the production of a working prototype, until the drawing up of an application for the invention in accordance with all the requirements, or until the appearance of an identical foreign patent or item.

The principle of the deposition of articles, manuscripts, books, and research results is well known and has been used successfully in the USSR for several decades. Thus, for example, any organization can deposit at the All-Union Institute of Scientific and Technical Information reports, papers, and manuscripts of books and articles, every author can do the same thing. The annotations of the deposited manuscripts are published, and at first request any client can get for himself a copy of the deposited work. Of course, all this is not free.

Third, it is desirable for the inventor to have a certificate of his authorship with an indication of the registration data (the class of the invention, the priority, the title, the name of the author, and so on) and the publication of an annotation of the invention in an all-union periodical publication.

The application system of the registration of inventions, which has been adopted, for example, in France, satisfies almost completely all the requirements listed above. This system does not provide for the making of an examination of the application for an invention. An inventor's certificate is issued to the inventor after the submission, registration, and deposition of the application for the invention with the subsequent publication of a brief report on it in the periodic press.

But how are we worse? Why not form an alternative committee of inventions, which is extradepartmental, is established on a joint stock basis by several founding organizations, and would issue privileges to inventions for all inventors and innovators, who have fulfilled the rough application requirements?

Such a committee will register as inventions methods and systems of the organization of production, designs and diagrams of planning, methods of analysis, and methods of scientific developments and design.

And the primary thing is that the associative committee should protect with an inventor's certificate game programs for personal computers, application programs, utilities, and databases for computers. Let us call it the All-Union Associative Committee of Inventions (Vaskomizobreteniy).

And here the first, but a perceptible blow was dealt to the monopolism of the State Committee for Inventions and Discoveries. The Privilegiya Associative Committee, which was organized by the Soyuz Aviation Scientific and Technical Center, the Inosfera Cost Accounting Center, the Council of the All-Union Society of Inventors and Efficiency Experts of the Moscow Aviation Institute imeni Sergo Ordzhonikidze, the Avtomatikaservis Cooperative, and the editorial board of the journal IZOBRETEL I RATIONALIZATOR, was established in May 1990. The State Committee for Inventions and Discoveries reacted immediately to this. Its legal department decided to check the legal competence of the established Associative Committee of Inventions and to voice its claims. But it turned out that everything is in order. Letter-applications for inventions immediately came to Privilegiya, in spite of the very scanty information about it. There is even a proposal from abroad. But this, we hope, is just the beginning.

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Petition Urges Speedy Passage of Law on Inventions, Patents

917A0138A Moscow PRAVITELSTVENNYY VESTNIK
in Russian No 5 (83), Jan 91 p 10

[Letter: "An Open Letter of Inventors to the Parliament of the Country"]

[Text] The extreme uneasiness about the success of the economic and social transformations in the country forces us to address this letter to you. The inexplicable delay with the passage of one of the most important legislative acts that promote the processes of perestroika—the Law "On Invention in the USSR"—served as grounds for this.

Drafts of the new law on two occasions in recent years were submitted for national discussion. Its final version, which was worked out in commissions and committees of the USSR Supreme Soviet, concentrates everything of greatest value, which has been accumulated by world practice in lawmaking of this sort. It could not only set into motion tools that stimulate the creativity of inventors, but also become a reliable guarantee of the protection of the rights of authors and owners of intellectual and industrial property. Moreover, the putting of this law into effect enables patentees to acquire additional sources of currency receipts and the state to attract to the economy of the country additional foreign investments. The law lifts the existing bans on the acquisition by foreign firms of patents in the USSR for a number of new objects, which makes it possible to open up the domestic

market for a broader influx of the latest equipment and technology, which the national economy needs so much.

As we know from the mass media, the lack of this document in the most immediate future can have a disastrous effect on the international obligations of the USSR and the understandings that have been reached in recent years. The Soviet Union is a party to many agreements: commercial, technical, and scientific, which cannot be implemented until the new Law "On Invention in the USSR" takes effect, for the obligations of the Soviet side on the passage of laws on the protection of objects of industrial property in complete conformity with world practice are specially stipulated in these agreements. And in this connection we would like to remind the parliament of the words of Mark Twain, not only a well-known writer, but also a talented inventor: "A country without a patent bureau and steadfast laws, which protect the rights of inventors, is like a crayfish, which can move only sideways or backward."

On behalf of the millions of inventors of the Soviet Union we appeal to the USSR people's deputies to include the consideration of the draft of the Law "On

Invention in the USSR" in the agenda of the fifth session of the USSR Supreme Soviet.

[Signed] A. Bliskunov, honored inventor of the USSR (Simferopol); V. Portnyagina, honored inventor of the USSR (Kiev); A. Kурдадзе, honored inventor of the USSR (Tbilisi); L. Russin, honored inventor of the USSR (Moscow); V. Kalikov, honored inventor of the Komi ASSR (Syktyvkar); V. Lebedev, honored inventor of the RSFSR (Moscow); Academician of the USSR Academy of Sciences Ye. Yenikolopov, inventor (Moscow); G. Denisov, inventor (Leningrad); L. Zarogatskiy, inventor (Leningrad); S. Balakin, inventor (Sverdlovsk); V. Kozin, honored inventor of the Azerbaijan SSR (Novorossiysk); A. Volochko, inventor (Minsk); V. Rodionov, inventor (Armavir); G. Berlin, honored inventor of the RSFSR (Moscow); A. Tsoy, inventor (Frunze); I. Rogoza, inventor (Vitebsk); M. Silman, honored inventor of the RSFSR (Moscow); A. Galperin, inventor (Moscow); V. Steshenko, inventor (Zaporozhye); V. Podorvanov, inventor (Moscow); Doctor of Technical Sciences V. Postoyev, inventor (Leningrad)—in all 100 signatures.

Konovalov on Integrating Soviet Science With World Markets

917A0149A Moscow *IZVESTIYA* (Union edition)
in Russian 1 Jun 91 p 6

[Article by IZVESTIYA science commentator B. Konovalov under the rubric "The World and We" (Washington-Moscow): "The Price of Intelligence. How Soviet Scientists Are Trying To Break Through to the World Market"]

[Text] While our country is being split by republic and oblast "fences," on the rest of the planet the process of forming a unified science and technology space is developing. And our best scientists are making today desperate efforts to succeed in taking seats on this "train," which is picking up speed.

Now both the rate of dissemination of information on the results of scientific research and the time of their transformation into real industrial technologies are increasing drastically. And whoever succeeds in appearing earlier with a new technology on the commercial market, takes all the cream off the economic success. Therefore, information on scientific and technical innovations is becoming more and more valuable.

Unhurried paper scientific journals, when up to a year (and in our country even longer) passed from the submission of an article to its publication, are being succeeded by electronic journals, where this time is cut down to a week. The contents are fed into electronic data banks, and at the request of the user in literally a few minutes the information of interest is printed out on the printer of his personal computer. And this network is becoming more and more branched. Today the national scientific and technical information service of the U.S. Department of Commerce has 1.5 million electronic users.

And now the Soviet Union is also joining this electronic structure. Moreover, an original and instructive form of "introduction" on the American technological information market has been chosen. The Science Information Express Data company has been set up in the United States. This company is an American one, but of its 12 directors 11 are Soviet scientists who represent various biotechnology organizations. For the present this company specializes in biotechnology—one of the most dynamic current fields of knowledge and one of vital importance for the Soviet Union. A contract on the transmission of three Soviet electronic journals to the United States has already been signed.

"Our main goal," say Prof. S. Varfolomeyev of Moscow State University, president of this company, "is to join the world flow of scientific information and the planet-wide transfer of technologies. In the United States the work in the area of biotechnology is most developed, and for us access to American data in exchange for our information is playing an exceptionally important role."

It is also no less important that we will obtain currency, which we will be able to dispose of ourselves."

American businessman D. Pales, executive director of the firm, also hopes to earn money on the sale of Soviet scientific information. He believes that for the present it is being shamelessly used by American firms free of charge. And he, by earning money himself, intends to defend the interests of Soviet scientists, who for the present do not know the American market and may miss their own advantage. On the other hand, the well-known American law firm headed by D. Kunkel, who for the present is working out of "sporting interest," counting on good dividends in the future, has been enlisted for the defense of our interests and the evaluation of all contracts.

I managed to attend the first "business seminar" of the new firm, which was held in May in Washington. This meeting in contrast to the now fashionable large exhibitions and major conferences was of a chamber, modest nature. Seven prominent Soviet scientists told about the results of their research. Only representatives of American firms, who, having familiarized themselves in advanced with the agenda of the seminar, had expressed interest in acquiring the technologies being discussed, sat in the small hall. In the lobby and over lunch everyone was able to come to an agreement on the development of contacts and the obtaining of more detailed information, which precedes the conclusion of contracts. This was a truly business meeting, and it is anticipated that they will be held quite often in various U.S. cities with the change of Soviet specialists and American firms.

The report of M. Kirpichnikov, chief of the Department of Promising Biotechnologies of the USSR State Committee for Science and Technology, on the scope of basic biotechnological research in the USSR, which is being conducted within the framework of four state programs, made a great impression on the American participants in the first meeting.

Unfortunately, even participation in state programs, although of enormous importance for domestic laboratories, still does not solve today all the problems of the support of the research being conducted. In the evening at the hotel we talked frankly about the formed situation with scientists, and I would like to convey to the public their extreme concern for the fate of our science.

"One after another associates are now beginning to come to me and report that soon they will have to halt experiments," says Corresponding Member of the USSR Academy of Sciences A. Bogdanov, deputy director of the Institute of Physical Chemical Biology attached to Moscow State University. "There are no elementary reagents. Our industry does not produce them. Not that much currency is needed—\$15,000-20,000 a year, but they are not providing it, as was the case earlier. We will hold out with the old equipment for another three to four years. But without reagents it is all over. The only thing that keeps many of our scientists from emigrating is the

opportunity to perform interesting work in the homeland, in spite of all the difficulties of daily life. Now the acute currency shortage has seized us by the throat. With enormous difficulty molecular biology and genetics got back on their feet after the dark era of Lysenko, now our science is again in danger. In every laboratory, as a rule, there are three or four 'locomotives', or else one. If they leave, this is the creative death of the collective. While the West is willingly taking on our specialists in the field of molecular biology. Thus, we must use all means to change over to currency self-sufficiency and to preserve domestic science."

"Last year alone," Corresponding Member of the USSR Academy of Sciences V. Debabov, director of the All-Union Scientific Research Institute of Genetics and Selection of Industrial Microorganisms, echoes his words, "the Ministry of Medical Industry owed the collective 5 million rubles [R]. This year it has added another R1 million to this debt. Now the ministry has been eliminated, thus, we will not receive this money. The state formulates plans, ordering research, and...deceives us. At the same time the law on intellectual property has thus far not been passed. All that we need is a commodity, for which it is necessary to pay with money. But our product is not a commodity. What nonsense! The only alternative for us is the sale of developed technologies where they are a commodity, abroad. The institute is large. For the support of research we need \$500,000-600,000 a year. It is necessary somehow to earn it ourselves. We have already appeared on the Japanese market, now we are breaking through to the American market...."

"We can no longer be 'a dog in the manger,'" Corresponding Member of the USSR Academy of Sciences and Academician of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin I. Atabekov, a well-known virologist, seconds him. "For in our country a negligible portion of the acquired knowledge is implemented in practice, the rest simply grows old. While in the United States all worthwhile ideas are put to use. And here in contrast to us the scientific idea is a commodity. Therefore, the establishment of an intermediary firm, which knows well American laws and the ways of the market, so that the knowledge acquired in our homeland would serve mankind and would bring us currency, is very important for us...."

It is clear why Soviet science is breaking through to the world market. But it is obvious that this is not that easy. The unconvertibility of the ruble is creating many difficulties. One of the problems is the payment for communications lines, which are vitally necessary in case of the intensive exchange of information. And here our astrodynamics, which is also seeking an outlet to the world market, can come to the aid of Soviet scientists.

In the United States the recent report at a national symposium on space of Academician M. Reshetnev, general director of the Scientific Production Association of Precision Mechanics, under whose supervision nearly all Soviet communications satellites and space geodetic and navigation systems were developed, was received with great interest. Together with the Soyuzmedinform Scientific Production Association and the Scientific Production Association of Precision Instruments the firm, which M. Reshetnev heads, established the Association of Manufacturers of Small Satellites and Representatives of Communications Services—Smolsat, which a number of foreign organizations are joining, and it is becoming international.

The proposed communications system is based on low-orbit satellites. Many of them—36—will be required for the support of global communications from any point on earth. But, in turn, they are small and inexpensive. Six such satellites are simultaneously put into orbit by one of the least expensive series-produced Soviet rockets, the Tsiklon. This system, which has received the name Gonets (or Messenger in English), will support the transmission of any data in digital form—telex, text, speech, the exchange of information between databases, and the gathering of information from environmental monitoring sensors. The ground receivers of this system are also simple.

It is characteristic that the Soyuzmedinform Scientific Production Association, which A. Kiselev heads, was one of the initiators of the establishment of the Gonets system. The State Central Scientific Medical Library, which is a part of this scientific production association, is one of the first in the country to convert to the "electronic rails." All the basic works of our medical personnel are being entered in an electronic data bank, and exchange with the FRG has been organized. Owing to this the entire world community has access to our medical database. It is necessary to note that the intermediary firm Science Information Express Data and Soyuzmedinform intend to use machine translation from Russian to English, and vice versa. In principle machine translation is also possible for any other pair of languages.

At the Central Scientific Medical Library I also met representatives of the business counterflow—the directors of two English firms. In one of the halls of the library an area is screened off for the Gippokrat commercial information system. Here detailed information on all the equipment and pharmacological agents, which are offered for sale on the Soviet market, is stored in the memory of computers.

For the entry of their data into this system foreign firms pay in currency, receiving in exchange a broad audience. Information is also made available to our clients on a commercial basis, but with payment in rubles.

"In spite of the difficult times," G. Ustas, head of the British firm Cornix Systems, said to me, "the Soviet market remains very attractive. For example, in 1989 \$3 billion of various equipment and medicines were purchased from you. We hope that the establishment of the Gonets system will fundamentally augment the Gip-pokrat system and will make it global. The Soviet Union was the leader in the development of small satellite systems. Now many firms have entered the chase, yet

only your country for the present can offer a system that is ready for use, but time in our rapidly changing world plays a colossal role."

As you see, our science and technology are bursting onto the world market not empty-handed. We will hope that we will all the same succeed in getting seats on the express train with the name "world scientific and technical progress."

Appointments to New Ukrainian Medical Problems Division

917A0140A Kiev PRAVDA UKRAINY in Russian
13 May 91 p 3

[Article by Aleksandr Maslov and Yuriy Vilenskiy under the rubric "Details for PRAVDA UKRAINY": "Medicine in the Academic Gown"—first paragraph is PRAVDA UKRAINY introduction]

[Text] "A skillful healer is worth many soldiers"—these words, perhaps, describe precisely the new possibilities of the Academy of Sciences of the Ukraine in its appeal to the practice of medicine. A galaxy of prominent medical scientists of the Ukraine has joined the problems of medicine department, which was recently established in the Ukrainian SSR Academy of Sciences. Pharmacology and surgery, nephrology and toxicology, medical radiology and ophthalmology are just a few directions in health care of the republic, which henceforth will be developed at the academic level. If we add that the strengthening of the biochemistry, physiology, and theoretical medicine department has taken place, it is possible to talk about a powerful scientific biomedical complex which does not have analogs. The initiative in such a transformation belongs to President of the Ukrainian SSR Academy of Sciences Academician B.Ye. Paton and Ukrainian SSR Minister of Health Yu.P. Spizhenko.

S.V. Komissarenko, a prominent specialist in the field of immunobiology; A.F. Vozianov, a well-known urological surgeon and experimenter; A.A. Moybenko, a talented researcher in the sphere of physiology; and V.G. Pinchuk, a theoretical oncologist, were elected academicians of the Ukrainian SSR Academy of Sciences. Among the corresponding members of the Ukrainian SSR Academy of Sciences, through whose works many urgent sections of practical and theoretical medicine will now be advanced more productively, are pharmacologists I.S. Chekman and I.V. Komissarov, microbiologist V.P. Shirobokov, X-ray radiologist L.G. Rozenfeld, surgeons V.F. Sayenko and V.L. Ganul, geneticist V.A. Kordyuk, anesthesiologist and resuscitation expert L.V. Novitskaya-Usenko, biochemist N.M. Gulaya, pathomorphologist D.D. Zerbino, toxicologist Yu.S. Kagan, obstetrician and gynecologist G.K. Stepankovskaya, neurosurgeon Yu.A. Zozulya, pediatrician B.Ya. Reznik, therapeutists L.A. Pyrig and A.D. Vizir, cardiologist V.A. Bobrov, endocrinologist A.G. Reznikov, pathophysicist E.V. Gyulling, and ophthalmologist N.M. Sergiyenko. It is also significant that the geography of medical representation at the academy has expanded appreciably: In addition to Kiev, Kharkov, and Simferopol it now encompasses Lvov, Zaporozhye, Dnepropetrovsk, and Odessa. Of course, this is important for the fortunes of medical science in the republic.

The competition in all fields in the difficult marathon for election to the academy was very intense. In all 126

prominent scientists and, hence, many years of painstaking scientific and clinical work, inventions and discoveries, and landmark publications vied for 25 vacancies. It is impossible not to note specially that many names are familiar to the readers of PRAVDA UKRAINY. Thus, several years ago in the article "Granules of Salvation" we told for the first time about the use of hemosorption in the treatment of patients in the most grave condition, in which Lyudmila Vasilyevna Novitskaya-Usenko, a professor of Dnepropetrovsk Medical Institute, was one of the pioneers. The alarming situation in surgery and its achievements and difficulties were reflected in the thoughts of Valeriy Feodosyevich Sayenko—director of the Kiev Institute of Clinical and Experimental Surgery, the formation of which is connected with the works of Hero of Socialist Labor and Academician of the Ukrainian SSR Academy of Sciences A.A. Shalimov. A new method of treating urinary calculosis, which was introduced in the Ukraine, along with other medical and social undertakings, on the initiative of Aleksandr Fedorovich Vozianov, was discussed quite recently in the report "And a Scalpel Is Not Needed." Infrared imaging and medicine—this facet of diagnosis, which is acquiring today its own special importance in connection with the absence of a radiation load when using it, appeared in an account of the innovative research of Leonid Georgiyevich Rozenfeld. Our newspaper was the first to tell about the artificial crystalline lens, which was invented by Nikolay Markovich Sergiyenko, and the prospects of the center of eye microsurgery, which he heads. The fundamentally new positions in pharmacology and the turn of pharmacy to the experience of folk medicine were discussed in an interview with Ivan Sergeyevich Chekman—director of the Scientific Research Institute of Pharmacology and Toxicology and a student of Academician of the USSR Academy of Medical Sciences A.I. Cherkes. Lyubomir Antonovich Pyrig—a highly educated therapist and nephrologist—expressed on our pages his views on the prevention of kidney diseases. It is significant that now the academic title will also further the undertakings of Ukrainian SSR People's Deputy L. Pyrig as chairman of the subcommission for the preservation of the gene stock of the country. Virologist Vladimir Pavlovich Shirobokov, the author of the first scientific monograph in the country on this topical theme, twice published articles on the problems of the prevention of AIDS in PRAVDA UKRAINY.

Of course, frankly speaking, we are satisfied that the attention of our newspaper to some aspects or others of medical research coincided with their high academic rating. And the essence consists by no means only in the priority of information, although this is also not out of place in the actual feeling of the pulse of life. We believe that the support of the newspaper contributed first of all to the speeding up of the necessary decisions on the practical level and stimulated public interest in unusual facts and ideas, which is of no small importance in scientific struggles.

We want at the same time to note that we have before us, obviously, just the start on the path of the establishment

of the Academy of Medical Sciences of the sovereign Ukraine. A base in the form of a network of recognized authoritative institutions and a scientific personnel potential exists. It is gratifying that Academicians of the USSR Academy of Medical Sciences Ye.M. Lukyanova, Ye.I. Goncharuk, A.P. Pomodanov, L.T. Malaya, N.A. Puchkovskaya, A.S. Yefimov, D.F. Chebotarev, and M.G. Shandala, Corresponding Member of the USSR Academy of Medical Sciences and Academician of the Ukrainian SSR Academy of Sciences N.M. Amosov, and other prominent scientists are now cooperating more and more actively with the problems of medicine department, while Academician of the Ukrainian SSR Academy of Sciences and Corresponding Member of the USSR Academy of Medical Sciences Yu.I. Kundihev heads the department. And the scientists, who ran for election to the academy, but were not elected at this stage, are also a genuine legion of scientific thought, for in our election there are winners, but no losers. And there is another sign of the times: Henceforth the chairman of the Scientific Medical Council of the Ukrainian SSR Ministry of Health is being represented in the Ukrainian SSR Academy of Sciences, while the republic minister of health was elected a member of the bureau of the problems of medicine department.

What conclusions do we, journalists, draw for ourselves? To write more about the new trends and results in medicine and about organizational and scientific innovations. There are quite a number of them, and all this is interesting to people. Therefore, firsthand information, as applied to the field of health, will later also occupy its own place in the newspaper.

Head of New Georgian Science Ministry Interviewed

*917A0141A Tbilisi SVOBODNAYA GRUZIYA
in Russian 2 May 91 p 2*

[Interview with Irakliy Zhordaniya, Minister of Science, Technology, and Long-Range Planning of the Republic of Georgia, by SAKINFORM correspondent Alla Kokaya; date and place not given: "From New Positions"—first paragraph is SVOBODNAYA GRUZIYA introduction]

[Text] It has been several months since the Ministry of Science, Technology, and Long-Range Planning of the Republic of Georgia was established. Minister Irakliy Zhordaniya tells about the problems of the scientific and technical development of the republic and the vital tasks.

[Kokaya] Mr. Zhordaniya, what is the role of the scientific and technical potential of the republic in the formation of the national economy of Georgia?

[Zhordaniya] The restoration of the independent statehood of Georgia also implies the formation of a market economy in conformity with national interests. The multiparty parliament and Government of the republic have outlined a large and versatile program, the basic outlines of which were set forth in the election platform

of the ruling block of parties, "Round Table—Free Georgia." It should be noted that the implementation of any economic program in many respects depends on the scientific and technical potential of the country and its efficient use.

The collapse of the directive planned economy to a significant degree is explained by the fact that it did not meet the requirements of the present scientific and technical revolution. The economic difficulties of the Soviet Union, and, therefore, of Georgia as well, in many respects are explained by the extremely low competitive ability and quality of products and by the lag of the scientific and technical level of production. There was also added to this the fact that the half-hearted and unsystematic steps of economic reforms, which were taken during the years of so-called perestroika, instead of promoting scientific and technical progress, decreased even more the technical level of the output of products. For example, whereas in 1989 machine building of Georgia in the total volume of finished items exceeded 20 percent of the share of products that were produced in the Soviet Union for the first time, last year this indicator decreased to 7.7 percent. The production volume of such products decreased to nearly one-third. Unfortunately, more than 60 percent of our industrial enterprises do not have at all means of the overall mechanization and automation of production processes, while in developed countries of the world the robotization and electronization of production processes are intensifying more and more. In the past five years in republic industry as compared with the preceding corresponding period the capital investments for these purposes decreased by a factor of 2.3.

It is clear that if we begin to follow this trend, we will move farther and farther away from the demands that are made on the economy in civilized countries. Scientific and technical progress is the sphere, in which one should first of all overcome the obsolete system of management and eliminate negative processes. The transition to market relations and the development of healthy competition should promote comprehensively the awakening and realization of scientific and technical thought.

Science and technology require constant state care. It is necessary to regard as a real expression of such an approach to this question the establishment by the multiparty parliament of the Republic of Georgia of the Ministry of Science and Technology. Its main and very responsible task is the formulation of a national science and technology policy, the selection of priority directions, the stimulation of the comprehensive use and development of the scientific and technical intellectual potential, the putting into operation of effective mechanisms of the relations between science and production, and the purposeful use of international experience.

The implementation of a national science and technology policy will make it possible to ensure the efficient use of natural and manpower resources, the formation of

a qualitatively new sectorial structure of the economy in conformity with the task of the integral involvement of the economy of the republic in world economic relations, and the organization of the output of products and goods, which are competitive on the international market, on the basis of the development, acquisition, and introduction of science-intensive and energy- and resource-saving technologies. We regard as one of the most important aspects the creation of favorable conditions for the solution of urgent social problems: the rationalization of employment, the training of highly skilled personnel both in the republic and abroad, the improvement of the environment, the improvement of the demographic situation, the strengthening of the health care system, and the use of other components of civilized life.

[Kokaya] Do governmental structures supervise the accomplishment of such tasks in foreign countries, where a developed market economy exists?

[Zhordaniya] Yes, in economically developed countries of the West specialized state organs—the ministries of science and technology (Germany, France, Austria), education and science (Great Britain, Spain, Italy), and science and technology (Austria, Canada) and other similar departments—are in charge of the formulation and implementation of science and technology policy. Two such departments exist simultaneously in several countries. The goal of including such departments in the governments is to avoid economic and social difficulties and a lag.

It is clear that the amount and effectiveness of the activity of the mentioned departments differ owing to the political and economic environment of one country or another. Therefore, we are trying to familiarize ourselves extensively with their experience and to borrow it in the process of solving our own problems. Recently our associate for several days familiarized himself with the functions and structure of the Ministry of Research and Technology of Germany. A good opportunity for bilateral mutually beneficial contacts was afforded. We will once again continue and intensify the work in this direction.

[Kokaya] Could you single out the most urgent problems from the priority directions of scientific and technical development?

[Zhordaniya] Based on the present situation, the food and energy problems remain the most urgent of the urgent problems. Our unique nature and soil and climatic conditions make it possible under the conditions of an effective economic mechanism to achieve a high level of development of the agrarian sector of the economy.

The problem of power engineering is much more complicated. Last year the electric power plants of the republic generated 14.2 billion kilowatt-hours [kWh] of electric power. But the demand came to 19.2 billion kWh. We obtained a portion of the shortage—3.2 billion

kWh—from outside the republic, while a portion—1.8 billion kWh—remained uncovered, which resulted in the significant downtime of production capacities and did enormous economic harm. An even more critical situation formed this year, when at the beginning of the year we were forced to shut down many enterprises of machine building and light industry and other sectors and to restrict the household consumption of electric power. In the next few years there is practically no prospect to improve the situation. The point is that our basic power resources are hydroelectric, only 11.3 percent of which have thus far been assimilated. However, even in case of the significant increase of this indicator we will not be able to establish a reliable power base, for hydraulic power engineering under our conditions is of a pronounced seasonal nature, not to mention the established negative attitude toward hydraulic power construction from an ecological point of view. As to the construction of thermal power plants at the present stage, there is no alternative except the construction of new powerful base thermal electric power plants in Western Georgia. However, it is well known that thermal power plant are completely dependent on imported fuel, which decreases sharply the level of autonomy of our economy. During the discussions on these questions the opinion concerning the elimination in our republic of electric power-consuming enterprises was repeatedly expressed, but we categorically rejected it. If we aspire to western standards of the economy and life, we should understand that one of the basic causes of our lag is the low power-worker ratio and the low level of the generation and consumption of electric power. Suffice it to note that the per capita consumption of electric power in Georgia comes to 3,200 kWh, on the average for the Soviet Union it comes to 5,800 kWh, while in Sweden it comes to 13,200 kWh, in Canada—14,400 kWh, in the United States—10,000 kWh, and so on.

Proceeding from what has been said, let us note that in Georgia scientific and technical thought and its potential should be aimed at the search for a way out of the formed energy deadlock. This is the development of hydraulic power projects, which can do the minimum ecological harm, and the alternate use of nontraditional renewable sources of energy. The elaboration of the so-called hydrogen power problem, which is new for the republic and which for the purposes of transforming seasonal surplus peak hydraulic power resources and solar and wind power into base power envisages their storage by means of hydrogen, merits attention. The use of hydrogen as a fuel in technology and in motor transport is also envisaged in the future. There are also other projects, the development of which should be envisaged in the new scientifically substantiated energy program, while active participation in its formulation and implementation is one of our main concerns.

[Kokaya] In scientific and technical work foreign economic activity seems to be one of the most important sections. It is called upon to become the basic connecting link of the scientific achievements of the republic with other countries. What are the prospects in this direction?

[Zhordaniya] The activity in this sphere, in my opinion, should be aimed in two priority directions: First, this is the sharing of documentary data and work experience in the sphere of scientific and technical progress with foreign country through direct involvement in the world information system and, second, the purchase and sale of scientific developments, equipment, and technologies in the form of licenses and patents, as well as other social forms.

The involvement of applied science of Georgia in the scientific complex of the developed countries of Europe and the world should be regarded as the most important direction of the strengthening of the scientific and technical potential of the republic. The attraction of the world scientific and technical potential to traditional and nontraditional sectors of the economy of the republic is also of great importance.

Armenian Academy of Sciences Official on Coping With Independence

917A0139A Yerevan GOLOS ARMENII in Russian
23 Apr 91 pp 1, 2

[Interview with First Vice President of the Academy of Sciences of Armenia David Mgerovich Sedrakyan, doctor of physical mathematical sciences, professor, and academician of the Academy of Sciences of Armenia, by GOLOS ARMENII correspondent N. Ravich; date and place not given: "The Academy: Steps Toward Independence and the Market"—first paragraph is GOLOS ARMENII introduction]

[Text] Recently at a meeting of the Academy of Sciences of the republic a new first vice president was elected. David Mgerovich Sedrakyan—a doctor of physical mathematical sciences, a professor, a specialist in theoretical physics, the author of about 120 scientific works, and an academician of the Academy of Sciences of Armenia—became him. At the request of a GOLOS ARMENII correspondent, he answered questions about the prospects of changes in the direction of the further development of science in the republic.

[Ravich] David Mgerovich, what trends, in your opinion, will dictate the changes, which have been demanded by the times and are capable of leading to an upswing in the development of science and of activating all its considerable potential forces? Obviously, these are first of all changes in the structure of the leadership of the academy itself, are they not?

[Sedrakyan] In December of last year a general meeting of the academy was held. A meeting of the presidium, at which the version of its restructuring was discussed, preceded it. The basic idea, which I proposed, envisaged: instead of six departments of the presidium to have three, which unite the physical mathematical, physical technical, chemical and biological, and social sciences, and at the head of them three vice presidents and an academician secretary. To establish in each department sections, which correspond to one field of science, with

an unpaid supervisor, and their own scientific councils. Also to assign to them the coordination of the actions of the scientific subdivisions of the corresponding field of science. The renewal of the structure of the presidium was aimed at the increase of the weight of its lower units (sections), the increase of their role and responsibility when discussing scientific problems, clear differentiation, and the elimination of duplication. But the presidium did not accept the proposal. The compromise proposal envisaged: the preservation of the former six departments, but the establishment in them of sections. The posts of vice presidents for fields of sciences were abolished. A new position—vice president for foreign relations and publication—was established. Academician G. Galoyan became him.

Thus, there are no new subdivisions in the presidium of the academy. But at the academy itself there are structural changes, and they are very substantial. They appeared over the last four years, undoubtedly reflecting the changes taking place in the country and first of all in the economy—the changeover to market relations. Today of the 50 subdivisions of the academy 32 institutes have individual special design bureaus, centers, and enterprises, which operate on the basis of cost accounting.

[Ravich] In connection with this I would like to turn to events of the not very distant past. Approximately 15 years ago Academician Viktor Ambartsumyan in his article in the newspaper IZVESTIYA spoke about the prospect of opening under academic institutes production subdivisions, for the most part of the instrument making type. How have these plans been put into practice?

[Sedrakyan] In a most direct manner. At many institutes of the academy there are production subdivisions and special design bureaus. Last year the Akustofizika Scientific Production Association attached to the institute of applied problems of physics and the joint Agrobiotekh Scientific Production Association of Armenia were established. The latter set itself the task to obtain virus-free seeds of potatoes and other agricultural crops. The institutes of general and inorganic chemistry, physical research, radio physics and electronics, and fine organic chemistry have pilot plants. There are a special design bureau and plant in Megri and Kafan. It is planned to establish a center for the use of lasers in medicine and so on.

As for the problem of the introduction of applied developments, this is a separate discussion. But I can talk about several results. In 1990, 90 applications for inventions were submitted. Favorable decisions were received for 65 of them. It is also noteworthy that last year the second license in the history of the republic was sold—a digital angle converter, which was developed at the special design bureau of the institute of radio physical and electronics. A German firm purchased it. (Let us recall: The first license was for the lactic acid mixture

Narine.) At the basis of the second license are eight inventions, which are now being patented in many countries of the world.

One thing is certain: The further expansion of scientific research, and first of all basic research and research of an applied nature, is making necessary the process of the further democratization of the system of the academy and its institutes. The essence of the changes will find its reflection in the new charter. The discussion of the question in the collectives of institutes will precede its writing. We are envisaging the granting to them of great rights, particularly to the remuneration of scientific associates in conformity with the importance of the research being conducted. It is necessary to enhance the role of the scientific councils and their interrelationship with the leadership of the academy.

These steps are new, and there may be differences of opinion on the road to their implementation. Therefore, a referendum on these questions in the system of academic subdivisions is necessary.

[Ravich] The Republic of Armenia is sovereign. How does this relate to the organization of science? After all, such questions as the financing of science and its ties with the academies of the USSR and the republics of the country and with foreign scientific organizations are arising.

[Sedrakyan] First of all I want to say: I regard as wise and natural the steps taken by the parliament of our republic toward independence. The process of the secession of the Republic of Armenia from the USSR should be carried out in conformity with USSR Law. In my opinion, every republic should hold its own referendum. But one this is unquestionable: The independent republic should not sever ties—economic, scientific, cultural, spiritual—with Russia and the other republics. Isolation is fatal. We should be equal partners, while taking at the same time all steps so that the traditional ties with the union Academy of Sciences and the scientific centers of all the republics would grow stronger and would be expanded. Basic science does not have boundaries, multilateral ties, of course, also with foreign centers of science, are invigorating for it. This year the Academy of Sciences of Armenia will receive from the union academy 28.5 million rubles [R] (on which there is a decision). Actually with allowance made for the increase of prices that has occurred this is the 1990 level. The academies of the Union, as well as Belorussia and Georgia have increased the wage of scientists by 60-70 percent. We were unable to do this—we did not receive additional assets. We addressed to the republic government the request to make available to the academy on the order of R10 million. For the present owing to the serious economic situation of the republic they have been unable to comply with our request. But it is envisaged during the discussion of the budget by the Supreme Soviet of the Republic of Armenia to consider and examine it.

The Committee for Public Education and Science of the Republic of Armenia intends to hold a competition on themes of scientific research for the purpose of distributing the monetary assets that have been envisaged for promising scientific research. Our academy intends to participate in this competition. At present we are holding talks with the union academy and the State Committee for Science and Technology on the possibility of making available to us the assets that are lacking for the increase of the wage of scientists. One must not forget that of the total number of Armenian scientists—about 4,000—nearly 1,500 earn on the average R140. In order not to lose specialists, we are obliged to ensure the improvement of their material status.

[Ravich] David Mgerovich, will not the difficulties, about which we are speaking, become obstacles on the road to the status of independence of the academy? How are the interrelations with governing organs of the republic conceived of, how are they related to the program of its economic development and to the Committee for Higher Education and Science?

[Sedrakyan] The interrelations of the Academy of Sciences with the republic government seem clear: The academy is subordinate to the republic Council of Ministers in its financial expenditures. The results of all scientific research and development will be turned over free of charge to the government. I would like to clarify my position with respect to the so-called three branches of science: academic, sectorial, and higher educational institution (VUZ). Such an artificial division is by no means conducive to the consolidation of all scientific forces. For 26 years I worked at a university and know the capabilities and level of science at the higher educational institution. It is poorly financed—according to, unfortunately, customary procedure. Hence, too, the attitude toward it. My position is the support of the closest horizontal ties of scientists of the academy and higher educational institutions. For this it is first of all necessary to free scientists of higher educational institutions from the excessive program of teaching work, having reduced this load, and to create for them opportunities to enter the laboratories and other subdivisions of the academy.

At the same time significantly more scientists of the Academy of Sciences should come as instructors to student lecture halls. The means of fusing disunited science into united science, which, undoubtedly, will ensure the achievement of a high level of research and the strengthening of the ties with scientific centers abroad and will determine the microclimate in science itself and with respect to it, is conceived as such. The questions of financing will also be simplified.

It is clear that the established division of science “among departments” will not be eliminated at one stroke. But it is necessary to aim for that. There is no alternative. As for so-called sectorial institutes, I think that they should be concentrated in the Committee for Higher Education and Science. VUZ scientists together with academy

scientists will conduct joint research, then in contact with the named committee will introduce basic developments in the corresponding sectors and, through them, in production. Science at the higher educational institution has for the most part a basic orientation, therefore, I regard as logical and justified its inclusion in the system of academic subdivisions. Here the very first requirement—the independence of both the academy and higher educational institutions—will be preserved. Their outlet is directly to the Council of Ministers of the Republic of Armenia. Initially these conditions should concern if only four higher educational institutions—the university, the polytechnical, medical, and agricultural higher educational institution.

[Ravich] Today, the principle, which determines the prospect of the development, the upswing of the economy and all its sectors, is market relations. Do they find reflection in the program of the activity of the subdivisions of the academy and what are the prospects in this direction?

[Sedrakyan] The independence of the academy and higher educational institutions is needed precisely in order not to come under the blows of the market economy. So far they are subordinate to the state and are financed by the state, they are dependent on it. But the changes in the economy, which are occurring during the present transition period, confirm how much science needs independence and market relations. Here is confirmation: Due to the processes of conversion and the changeover to cost accounting and the market academic subdivisions have already lost about half of the orders for development under contracts. For example, two-thirds of the contracts with the institute of radio physics and electronics alone have been canceled. Only with the changeover to the market will science, at last, be able to become a part of production, that is, will the problems of introduction be solved. (Now they are dragged out for years and decades and in meager quantities.) The production subdivisions of science fulfilled small orders for the production of three, six, nine instruments. That is, they are, in essence, not appearing on the market. In this sense the very infrastructure of the future market should be formed by the introduction of scientific developments. For the present in aggregate the budget of academic institutes of the applied type comes to only half of the budget of the academy. Contractual jobs with the military industry, space centers, chemical enterprises, and so on supported it. Now after the carrying out of conversion we hope that we will be able to introduce developments in the national economy. Possibilities for this exist at the institutes of inorganic chemistry, fine organic chemistry, radio physics and electronics, applied problems of physics, chemical physics, and others. We are attempting to establish ties directly with the sectors of the national economy, but without a market infrastructure it will be extremely difficult to accomplish this. If we generalize, without the inclusion of science in industry and in production there can be no appreciable gains in the economy of the 21st century. Products,

including those put out by science, and new technologies should be competitive and should be sold for currency. Without this the economy of the independent republic will have an extremely difficult time. The old infrastructures like ministries and committee for the present have been retained, but people with new thinking have come to their leadership. This inspires hopes.

[Ravich] I would like to know: Do the many years of "stability" of the management staff of the departments of the Academy of Sciences and the directors of its institutes and the rare reinforcement with young scientists of the contingent of corresponding members and academicians not cause you anxiety? Will the processes of democratization affect the highest echelons of power?

[Sedrakyan] My point of view is as follows: The fame of a scientist comes with the years. And it makes considerable demands: a high degree of skill, its recognition in the scientific world, a large number of works, the establishment of one's own school of followers. In my opinion, cases of the obtaining of the title of corresponding member and especially academician at the age of less than 50 are encountered not that often. The average age of corresponding members and academicians is from 67 to 69. As to the tendency toward the "aging" of the contingent of academicians and corresponding members, this is also explained by another factor. In the last 20 years elections have been held irregularly. For example, at the union academy elections are held every other year. Here they are held every four-five years. This has also led to the current situation.

It is clear that much depends on the presidium of the academy. But not only on it. The secret ballot at the level of departments, then at the general meeting of the academy did not always ensure objective fair elections and appreciation of the actual contribution of one scientist or another to science. At times the interrelations between people, ties began to play a considerable role. What is needed in order to avoid all this? First of all it is necessary to change the election system itself. Now we are thinking about how to make the election process more democratic and objective and to avoid possible mistakes and the underestimation or, on the contrary, the overestimation of the services of a scientist. Perhaps, it will be necessary to introduce an age qualification for nomination for corresponding member and academician for the purpose of rejuvenating the academy of the republic. In general, a large number of matters lie ahead and serious problems will have to be solved.

Notes on Estonian Academy of Sciences General Annual Meeting

917A0148A Tallinn VECHERNYY TALLINN
in Russian 11 Apr 91 p 1

[Article by Villi Ehatamm: "At the Academy of Sciences of Estonia: Results of the Work During the Past Year"]

[Text] Yesterday the 45th annual meeting was held at the Academy of Sciences of Estonia. Udo Margna, chief

scientific secretary of the Academy of Sciences, delivered the report on the scientific and scientific organizational activity of the academy during the past year.

Udo Margna called the work, which was performed during the past year, effective. Scientists of the academy published in the press 100 scientific monographs and papers, as well as more than 1,300 scientific articles. One-fourth of them appeared in international publications and approximately one-fifth appeared in scientific publications of the USSR. Last year more than 40 candidate dissertations and eight doctoral dissertations were defended. The first dissertation of the academy, which was defended abroad (at Stockholm University) in accordance with so-called western standards, belonged to Sulev Nyymann, a scientific associate of the Institute of Ecology and Marine Research. The problems of the Baltic Sea were examined in the work.

A favorable appraisal was given to the active work of the EKTA Special Design Bureau of Computer Technology. Scientific associates of the Institute of Economics made a large contribution to the development of the economic mechanism and the forecasting of economic development trends, which is connected with the changeover of Estonia to a market economy, as well as to the development of the scientific principles of the efficient use of our natural resources.

Udo Margna also noted in his report the considerable strengthening of the foreign ties of the academy, moreover, as of last year scientific institutions of the academy obtained the opportunity to cooperate with foreign scientific institutions and enterprises on the basis of direct contacts. Now cooperation is being carried out with 50 institutions.

Urmas Hang, a scientific associate of the Institute of Astronomy and Atmospheric Physics, Jaak Kikas, head of the laboratory of laser spectroscopy of the Institute of Physics, and others also delivered reports. A movie devoted to the study of ancient iron smelting methods, which was conducted under the supervision of Juri Peets, head of a laboratory of the Institute of History, was shown.

At the general meeting President of the Academy of Sciences Arno Keerna handed out certificates of the academy to the foreign members who were elected last year. Of the foreign members of the academy Charles Gabriel Kurland of Sweden, Johannes Piiper and Ivar Ugi of Germany, as well as Paivio Tommil of Finland attended. All members of the Academy of Sciences received new certificates of academicians of the Academy of Sciences of Estonia.

In the evening the president of the academy received guests at Glen Castle.

Ukrainian Academy of Sciences Forms Medical Problems Division

*917A0133A Kiev PRAVDA UKRAINY in Russian
5 Apr 91 p 2*

[Interview with Academician of the Ukrainian SSR Academy of Sciences Yuriy Illich Kundiyev, director of the Kiev Institute of Labor Hygiene and Occupational Diseases, member of the Presidium of the Ukrainian SSR Academy of Sciences, and academician secretary of the Problems of Medicine Department of the Ukrainian SSR Academy of Sciences, by V. Feldman, under the rubric "Details for PRAVDA UKRAINY"; date and place not given: "A New Department of the Academy"—first paragraph is PRAVDA UKRAINY introduction]

[Text] At the held general meeting of the Ukrainian SSR Academy of Sciences the decision on the formation of a new department—the Problems of Medicine Department—was made. Soon after this meeting we interviewed Academician of the Ukrainian SSR Academy of Sciences Yu.I. Kundiyev, director of the Kiev Institute of Labor Hygiene and Occupational Diseases, who was elected academician secretary of the Problems of Medicine Department and a member of the presidium of the Ukrainian SSR Academy of Sciences.

[Feldman] Yuriy Illich, let us begin the conversation with the reasons that prompted the establishment of the new department at the republic Academy of Sciences.

[Kundiyev] Up to now at the Ukrainian SSR Academy of Sciences medical science was essentially represented by a few prominent scientists, but biomedical research was conducted only at individual academic institutions—for example, at the institutes of problems of oncology, biochemistry, and physiology and several others. But an efficient system of research work on medicine and a center, which organizes it, did not exist at the academy, although the need for it, perhaps, did not raise doubts.

But I would not call even this factor the main one. Even more important is the fact that the establishment at the Ukrainian SSR Academy of Sciences of the Problems of Medicine Department affords exceptional opportunities for broad and fruitful ties of "sectorial" medical science with basic academic science and, of course, will be a powerful stimulus for the development in the Ukraine of the scientific directions, in which our positions are still weak and do not meet the present requirements. Thus, we have an urgent lack of serious basic developments on medical aspects of ecology, on medical genetics, and on a number of other scientific directions.

Medical science now simply cannot function soundly without close interrelations with chemistry, physics, mathematics, information science, material science, and other basic sciences. Such ties exist here and there, but they are usually based on the enthusiasm of scientists, on personal relations between them, and on contacts between individual interested organizations. But under

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present conditions it is simply impossible here to count only on enthusiasm—a thoroughly thought out systems basis is needed.

Moreover, large-scale science is an expensive pursuit, for it requires the latest equipment, reagents, and much more and, consequently, considerable assets. Here the allocations for science are more than modest, while altogether meager amounts, which make it possible just barely to make ends meet in solving urgent problems, are being allocated for research of a medical orientation. This, of course, cannot but affect—and everywhere is adversely affecting—the situation in practical health care, the present level of which does not satisfy either specialists or the population.

In spite of the obvious need for the development in our republic of the basic directions of medical science, the road to the birth of the Problems of Medicine Department of the Ukrainian SSR Academy of Sciences was by no means easy. And now, when this event, which is, without exaggeration, historical for us, medical scientists, has finally occurred, I want to emphasize that the presidium of the Ukrainian SSR Academy of Sciences and particularly its president, Academician B.Ye. Paton, gave substantial help in implementing this idea. The establishment of the new department was one of the important practical steps in the realization of the thesis of the need for the humanization of Ukrainian academic science, which was proclaimed in the spring of last year at the general meeting of the Ukrainian SSR Academy of Sciences.

[Feldman] What forces did the Problems of Medicine Department unite?

[Kundihev] Thus far there are five scientific collectives in it. The Institute of Problems of Oncology and Radiobiology imeni R.Ye. Kavetskiy was transferred to the new department from the academy's Biochemistry, Physiology, and Theoretical Medicine Department, while four scientific research institutes, which are located in the capital of the republic: the institutes of endocrinology and metabolism, neurosurgery, urology and nephrology, and labor hygiene and occupational diseases, were transferred from the Ukrainian SSR Ministry of Health. Moreover, it is a matter not of the simple change of signs—from signs of the Ministry of Health to signs of the academy, but of the serious intensification of research and its orientation toward the solution of important problems of basic science, the accomplishment of which should actively promote the progress of health care.

The potential of the Problems of Medicine Department of the Ukrainian SSR Academy of Sciences is not limited only to the scientific forces of the five mentioned institutes. Within our department there are also a number of well-known medical scientists, who work at institutes of the USSR Ministry of Health and the USSR Academy of Medical Sciences, among them are Academicians of the

Ukrainian SSR Academy of Sciences N.M. Amosov, V.P. Komissarenko, K.S. Ternovoy, V.V. Frolkis, and A.A. Shalimov.

I will also note the fact that by a decision of the general meeting of the Ukrainian SSR Academy of Sciences not only six academicians and three corresponding members of the Ukrainian SSR Academy of Sciences, who declared the desire to belong to it, but also 18 academicians and corresponding members of the USSR Academy of Medical Sciences, who work in the Ukraine and among whom are Academicians of the USSR Academy of Medical Sciences Ye.I. Goncharuk, A.S. Yefimov, A.A. Korzh, Ye.M. Lukyanova, L.T. Malaya, N.A. Puchkovskaya, A.P. Romodanov, D.F. Chetobarev, and other prominent scientists, received the right to participate with the right to vote in the first organizing meeting of the new department, which was held on 15 February.

[Feldman] On what basic tasks does the Problems of Medicine Department of the Ukrainian SSR Academy of Sciences intend to focus the attention of scientists?

[Kundihev] One of the most urgent problems is the short life span of people in our country, including in the Ukraine, which is particularly noticeable in comparison with many developed countries (and not only with them). Indeed, this problem is not so much an exclusively medical one as it is a social one. And that is why it is necessary to deal with it as a whole: Here, in addition to the social, ecological hygiene, and biomedical aspects, close contacts with the units of academic science, in which the principles of new low-waste and waste-free technologies—the most important factors of the improvement of the production environment and the environment—are being developed, are necessary.

Of course, the provision of the scientific foundation for the combating of cardiovascular and oncological diseases and other "diseases of the century" will also be at the center of attention of the new department.

And, of course, among the most important ones we see the basic medical aspects of the problems that were caused by the consequences of the Chernobyl catastrophe.

Lithuanian Physics Institute Director Interviewed

917A0137A Vilnius EKHO LITVY in Russian
6 Mar 91 p 2

[Interview with Doctor of Physical Mathematical Sciences Prof. R. Baltrameunas, director of the Institute of Physics of the Academy of Sciences of the Republic of Lithuania, by EKHO LITVY correspondent A. Ilyasevich; date and place not given: "Do Not Be on the Side of the Road. The Interview of Our Correspondent With Doctor of Physical Mathematical Sciences Prof. R. Baltrameunas, Director of the Institute of Physics of the Academy of Sciences of the Republic of Lithuania"]

[Text] [Ilyasevich] The past year and the beginning of this one, as is known, were marked by many difficulties of an economic nature. To what extent did they affect the activity of the institute which you head?

[Baltrameunas] To a very significant extent. Contrary to the popular idea of large budget allocations, which are earmarked for scientific research, we felt that they were extremely scanty. The institute does not have enough of them even for the payment of wages to associates. We ourselves are earning "our daily bread" by concluding scientific and technical contracts with various organizations of Lithuania and the Soviet Union. The blockade disrupted a large number of stable ties and made it incumbent to revise many things. However, the wide range of activity of the institute—from ecology to laser technology—is enabling us to build lasting contractual relations and to find means of overcoming the financial difficulties. Associates of the institute, as is known, are politically very active and frequently participated in rallies and demonstrations. It is gratifying that in so doing they also did not forget science. We published a large number of works in scientific publications and journals and participated in several scientific conferences. I can confidently say that, having given vent to their political convictions, the associates of the institute took up their immediate scientific duties with a sense of particular responsibility and with the understanding that now they are working in the name of free Lithuania.

[Ilyasevich] You changed radically the structure of management of the institute. What is the essence of the changes that you carried out?

[Baltrameunas] I would call this process the overthrow of dictatorial power and the democratization of the management of the institute. All power is now concentrated directly in the scientific council, of which not the director is the chairman, and in the laboratories. The administration carries out only strategic and financial management. Earlier the director was "God," now the head of the laboratory is. But I want to see to it that even not he, but the scientific associate would become the main character. So that everything would revolve around him, I want "to demolish the walls" of the laboratory.

[Ilyasevich] In the new charter of the Academy of Sciences the integration of the higher school and the academy is stipulated by a separate article. How will it be accomplished in practice?

[Baltrameunas] Without such integration I do not see prospects for the development of basic science in Lithuania. Now under the conditions of ever decreasing financing and breaches of economic contractual relations with the Soviet Union the fate of many good higher educational institution (VUZ) laboratories (I also have in mind the university), just as the fate of many scientists, is as if up in the air. As for physics, I see just one serious means of integration—this is joint thematic laboratories. I like very much the idea of a national laboratory, at which the best scientific forces would be

concentrated. Some laboratories (of both the Academy of Sciences and the higher school) could be transformed into firms attached to it. They would become a kind of science park, which would help large-scale science financially. The very serious problem of physics personnel is linked with this problem. The training of physicists in Lithuania has absolutely fallen behind the current level. It is necessary to change substantially its system, which formed at Vilnius University. Here it is necessary to open wide the doors for teaching to lead associates of the Academy of Sciences, who those, while have grown tired of science, but have much creative potential and experience, could work at scientific production firms attached to higher educational institutions and institutes. Incidentally, this would serve as a stimulus for young scientists, they could, having acquired experience under laboratory conditions, come to such a firm. The change of personnel would only contribute to scientific and technical progress.

I believe that Lithuanian science can achieve the world level. For this it is necessary first of all to establish a fundamentally new system of the training of scientific personnel, which operates in the unified complex of the academy and the higher school. But first of all we all need to renounce petty disputes, whims, and departmental arrogance.

[Ilyasevich] And what are the scientific and business interrelations of the institute with foreign colleagues and with the Soviet Union?

[Baltrameunas] There were and, I hope, will be good relations with scientific institutions and the Academy of Sciences of the USSR. Direct contacts with scientists of the Soviet Union are helping us to improve our work. In 1989 our institute participated on a competitive basis in a large number of all-union scientific programs, for which we received about 1 million rubles. But last year, probably due to the economic crisis in the Soviet Union and the complicated political situation in Lithuania they as if "forgot" us, and the institute did not receive competition assets. Is this, perhaps, an expression of distrust of us as a partner, which is determined in Moscow not in scientific circles, but in political spheres?

As for foreign countries, last year more than 30 associates of our institute went to various countries to participate in conferences, scientific work, and the establishment of business contacts. But until Lithuania is recognized in the world as a politically independent state, these contacts are very difficult. In science there is no and can be no autonomy, it does not recognize walls and borders. So it would be a political and moral blunder for us to isolate ourselves in science, including from the Soviet Union.

[Ilyasevich] A statement of the general meeting of the Lithuanian Academy of Sciences was published in our newspaper at the end of last year. Could you comment on it?

[Baltrameunas] At present a kind of hounding of the Lithuanian academy, particularly on the part of many unestablished scientists who are striving for power, has begun. I believe that the Academy of Sciences should be preserved, we need it as a coordinating scientific center, as a center of communication with the government and its structures and with foreign countries. Today an enormous intellectual potential, which it is possible to lose with a stroke of the pen, is concentrated at the Academy of Sciences. This must not be done. But the presidium of the Academy of Sciences needs to organize its work in a new way and more flexibly and to abandon the petty tutelage of institutes.

**Lithuanian SSR Academy of Sciences
Vice-President on Independence, Reforms**

917A0131B Vilnius TIESA in Lithuanian 2 Mar 91 p 3

[Interview with Algirdas Zukauskas, vice president of the Lithuanian Academy of Sciences, by Terese Kieziene: "We Are Responsible For Our Recommendations"]

[Text] [Kieziene] There are many reasons why our industry and agriculture lag behind. But now there is talk about a new guilty party: science has contributed nothing. Is that the truth?

[Zukauskas] It would be one-sided to say so. Fundamental scientific research has been widely utilized: electronic implants, galvanic technology, heat energy, computer technology and other works. We were often invited as consultants by foreign firms and scientific centers. It is another thing that the Academy was unable to get away from an ever-strengthening command and administrative policy.

The current reforms of the Academy are an attempt to rid itself of the characteristics of stagnation. It has to become a national scientific center for all of Lithuania, which would concern itself with scientific and technical progress and with nurturing culture.

[Kieziene] This is really a paradox. Most Lithuanian scientists are respected abroad. Their books are published, they are invited to give lectures, but at home our science gets none of the respect it needs. Will international ties help raise its authority in its own country?

[Zukauskas] Our international ties are indeed increasing. We have signed agreements of cooperation with the Great Britain, Hungary, Poland, with academies of northern Baltic rim countries, with Sweden, England, Scotland, and US universities. The English, who were the first to sign an agreement, emphasized that they were signing it with the independent Lithuania's Academy of Sciences. So this is recognition that it is a strong scientific center.

[Kieziene] Which of those countries' scientific systems would be closest to ours?

[Zukauskas] For a long time, I have liked the Swedish model for organizing science the best. Our current reforms are approaching this model.

There are two: the Swedish Royal Academy of Sciences and the Swedish Royal Academy of Engineering. The first is an association of about six institutes. It is founding new ones, and gives out Nobel prizes. The second operates as advisor to the government. I would like to discuss this one further.

In recent times, all of Sweden has been absorbed in arguments about the European common market. The idea is a good one, but the Swedes see that it will be hard for them to be competitive in a common market. You see, the prices of industrial goods and, particularly, of agricultural products are higher here.

The government is turning to scientists to examine the reasons and suggest how to lessen the cost of production so that Sweden would enter the European common market as an equal partner.

The Royal Academy of Engineering has about 500 members who work in many sections of twelve departments. The Academy has an industrial council whose chairman is the president of the Academy and whose members are heads of Sweden's largest companies. About 300 of the most well-known companies are collective members. Each year each one pays large dues so that they can use the Academy for consultations.

The conclusion was reached that it would be impossible to do anything without improving specialist training. That is why it was proposed to strengthen the technical base of universities and to reform the teaching of students. To this end the financing of the university has increased by 30 percent.

[Kieziene] What do you see as our economy's most important problems?

[Zukauskas] There are many of them, and they are all intertwined, and dependent one upon the other. But the axis upon which all of them turn is one, I think. In order to produce one unit of national product we utilize two to two and a half times as much raw material, metal, fuel, and energy than industries in Western countries. It is the same with agriculture, and the heating of large buildings. The Finns use 2.5 less fuel to heat one square meter than we do.

First of all, we have to undo this knot. This is just plain bad economics but at the same time it is an indicator of how backward our economy is, and how necessary are new, more progressive technologies. The task of the Lithuanian Academy of Sciences is to provide solutions to these problems. For this reason it is very important to consolidate the efforts of the best scientists.

All schools of higher education and other scientific institutions took part in recent elections. Until now, 60 or even 65 percent of full members and corresponding members worked at Academy institutes and 30 percent

elsewhere. Now, it is just the reverse: 60 percent of Academy members work at other scientific institutions and at universities.

There are many other changes. Suppose that the technical sciences division split off and became independent. It has sections of energy and transport, electronics and informatics, mechanics, construction, new materials and new technologies. The most important economic problems will be worked on there. We found a common language with the Association of Manufacturers.

[Kieziene] You have stated: "The Royal Academy of Engineering operates as advisor to the government." Does the Lithuanian Government and the Parliament consult with scientists?

[Zukauskas] At this time, some specialists from institutes are being invited to our Parliament, but I think that a more comprehensive analysis and consultation would be more useful. The presidium of the Academy officially has to receive projects or requests. We have met several times with the Government and discussed with the Parliament leadership that the desire of scientists to advise and propose is not just a matter of ambition. The truth cannot be denied—progress is impossible without science.

I think that the time is coming when the Government and the Parliament will begin to depend more upon scholarship which, in its turn, assumes responsibility for education, culture, and technical progress. We are responsible for our recommendations.

P.S. We did not manage to publish this interview before the visit to Lithuania of the leaders of the Swedish Royal Academy of Engineering: Chairman Professor S. Olving, President Professor H. Forsberg, and Secretary of the Mechanical Department, Professor B. Ringstrem. They visited enterprises, met with the Government, discussed a plan of operations with the Lithuanian Academy of Sciences, and signed a protocol.

Slow Progress in Organizing RSFSR Academy of Sciences

*917A0132A Moscow LITERATURNAYA ROSSIYA
in Russian 8 Feb 91 p 17*

[Article by Doctor of Physical Mathematical Sciences Mikhail Galakhov, chairman of the Council of Founders of the Russian Academy of Sciences, under the rubric "A Topical Theme": "Pure' Science. What is the Russian Academy of Sciences To Be Like? Thus Far There Is No Intelligent Answer to This Question"]

[Text] "The Basic Principles of the Formation and the Organization of the Activity of the Russian Academy of Sciences," which were elaborated by the Committee of the Russian Soviet Federated Socialist Republic

(RSFSR) Supreme Soviet for Science and Public Education on the instructions of the RSFSR Council of Ministers, were published in ROSSIYSKAYA GAZETA of 15 April 1990. The comments of committee chairman V. Shorin were given here.

Prior to the making by the RSFSR Supreme Soviet of the decision on the establishment of the Academy of Sciences of Russia other concepts of the academy and first of all the concept, which was proposed by the Commission for Science and Technology of the RSFSR Supreme Soviet of the last convocation, were discussed in the press (see SOVETSKAYA ROSSIYA, 26 December 1990, the article "From the Ground Floor").

On 13 March 1990 a decree of the RSFSR Council of Ministers was issued: The Constituent Committee, which was made up of members of the USSR Academy of Sciences, was commissioned to begin work on the organization of the academy, reserving power in it for the Russian part of the USSR Academy of Sciences. In a number of economic regions of the RSFSR the scientific community formed regional scientific coordinating councils, the Leningrad Department of the RSFSR Academy of Sciences was organized.

On 29 June 1990 at Moscow State University the scientific coordinating council for Central Russia of the RSFSR Academy of Sciences (the chairman was Academician I. Obraztsov, the deputy chairmen were Academician K. Kolesnikov, Corresponding Member of the USSR Academy of Sciences S. Nepobedimyy, and Doctor of Physical Mathematical Sciences M. Galakhov) was elected by a meeting of 511 scientists (among them were 221 doctors of sciences and 15 members of the USSR Academy of Sciences).

However, in July of the same year, after the statement of Deputy V. Sheynis, the session of the RSFSR Supreme Soviet, having established the academy, halted this work (although V. Shorin was in favor of its continuation) and commissioned the Committee for Science and Public Education to elaborate a new concept. The delay had the result that the most different groups engaged in the establishment of the Russian Academy of Sciences and an entire "bouquet" of Russian specialized academies: the academies of natural, technological, and agricultural sciences, the engineering academy, the academy of creativity, and others, blossomed. The first three academies were united under the aegis of Nobel Prize Laureate A. Prokhorov (who, incidentally, in the spring of last year in the presidium of the USSR Academy of Sciences was opposed to the establishment of the Russian Academy of Sciences in general) and attempted to obtain the state status of the Russian Academy of Sciences. Let us note that these academies of the sectorial and associative type began their work...with the election of academicians from among their staff.

The state needs an independent academy as insurance against incorrect steps. Sectorial knowledge in contrast to integral, comprehensive knowledge shuts itself up in

its own shell and degenerates. While the real scientist, just as, incidentally, the worker and the peasant, is the son of his own homeland, and not a person without kith and kin.

As it is, the delay in the establishment of the Russian Academy did not enable scientists of the RSFSR to introduce elements of the scientific approach in the making by the leadership of the country of the most important decisions in the area of the economy, land reform, interethnic relations, foreign policy, and mass information.

What did the newly elected Russian deputies offer scientists? The concept of the Committee of the RSFSR Supreme Soviet was discussed at the Organizing Congress of Russian Scientists on 20-21 December in Leningrad. It was pointed out that in the above-indicated comments of V. Shorin it is proposed to split the "soul" (the interpretation of the present status of science, forecasting, the specification of priorities) and the "body" (the direct output of the scientific product). In essence, this is an attempt to kill the Russian Academy of Sciences, and it merits the most serious attention.

An academy without practical work is an illusion. No one will take it into consideration. In "the most complicated and crucial cases," we read in the comments of V. Shorin, it is proposed to the government to request the services of foreign experts. But where are our "own Newtons"? After all, previously in the most complicated situations for the homeland all the same people, who intended to live on their own land, with their own children and grandchildren, decided the fate of Russia....

In Paragraph 2 of "The Basic Principles..." the goals of the academy are formulated: "the creation of the conditions for free and fruitful scientific creativity, international scientific cooperation," "the dissemination of scientific knowledge, the protection of intellectual property." The society of numismatists, but not the Russian Academy of Sciences could endorse such principles. Concern for and anxiety about the future of Russia are completely absent in this concept. The academy, having been established, should represent Russian science in international organizations not necessarily "on the instructions of the Supreme Soviet and Government of Russia."

In Paragraph 4 the academy is deprived of the right to have within it scientific research subdivisions or educational institutions, as well as to conduct commercial activity. These principles are called antimonopoly principles. But for some reason these arguments were not taken into account when establishing the academies in the union republics. Implementing its science policy "by the formulation of scientific programs and projects, which are carried out by higher educational institutions and scientific research organizations," that is, by completely different people, the Russian Academy will be like a person who gives advice, without being responsible for the consequences.

In Paragraph 5 it is proposed to finance the staff of the academy through the state budget, but nothing is said about the assets which will be spent on research. Apparently, precisely the staff will place with scientists orders for expert opinions, examinations, and program, as well as will indicate who is to carry out the financing and in what amount. The substitution of the concepts "Academy of Sciences" and "Expert Council" is occurring. Paid experts, like mercenaries, cannot be independent. Great opportunities for controlling the standpoints of scientists are afforded here, and we may get new "unpromising villages" and "diversions of rivers."

In general the Russian Academy of Sciences is first of all not a staff and academicians, but the idea of uniting the scientific potential of Russia for the solution of its most urgent problems. And it is necessary to begin the activity of the academy not with an election, having postponed it for a few years, but with work on goal programs of national salvation. In this work the leaders of Russian science will also show their worth.

For the present it is not clear what will happen with basic science in Russia. The USSR Academy of Sciences does not figure in the new concept, the average level of Russian scientific research institutes and higher educational institutions, unfortunately, is far from the academic level. There are Moscow State University, the Moscow Physical Technical Institute, Novosibirsk State University, Leningrad State University, the Moscow Engineering Physics Institute—and that, perhaps, is all.

In the comments of V. Shorin it is stated that the committee wanted "to protect the scientific headquarters of the republic against subjectivism, monopolism, departmentalism." However, as is stated in Paragraph 9 of "The Basic Principles..." the organizing committee of the academy is formed by "a group of authoritative scientists together with the Committee for Science and Public Education of the RSFSR Supreme Soviet." From where will these "authoritative scientists" appear? Will not high officials and deputies name them in the conventional secret manner? Will the interests of Russia and its peoples be dear to these scientists? It is unknown.

Another consideration. In the Russian leadership of science there are many rectors, prorectors, and heads of chairs. This is not bad, but the average level of higher educational institutions, as I said, is low, although at them, as a rule, many prominent scientists work in rank and file positions. By transferring the powers on the formation of the Russian Academy of Sciences to the Committee for Science of the RSFSR Supreme Soviet and reserving for the government (according to the concept) the entire material base of Russian science, we are taking the risk of getting a "rector's" academy with academicians from among VUZ authorities.

After the "cursory" criticism of the deputy's concept of the Russian Academy of Sciences a question arises: How did it happen that socially significant goals were not formulated? And, what is the main thing, for what is it,

the Russian Academy of Sciences, nevertheless needed? To give paid advice to the government? To confer the titles of academicians on hundreds of rectors, directors, and deputies? To improve the foreign rating of individual people? To expedite the selling off to western foreign countries of intellectual values—theories, programs, technologies?...

No, the Russian Academy has other goals. For the making of decisions that lead the country to prosperity, including in the distant future, administrators need to know the truth about the people and to link their own interests closely with the people's interests. Thus, the mobilization of the efforts of intelligent (in order to distinguish the truth from falsehood) and highly moral (in order to look after the interests of the people) people, intellectual and spiritual leaders, who preserve and develop science and culture, is needed. In Russia this social stratum in one form or another always existed. However, as is known, after the 1917 revolution the stratum of intelligent and moral people incurred enormous losses. The ethnic composition and intellectual-moral level of administrative structures also changed. Russia, which was reduced to the RSFSR, was without its own academy of sciences, and thereby the Russian people and its other peoples were left without the scientific protection of their interests. The USSR Academy of Sciences owing to its status would not deal with Russian problems, which were not posed to it or were outside the sphere of its interests.

During the years of "stagnation" and "perestroyka" the destruction of the state system continued, and now we are seeing the continuous outflow of nonrenewable resources from the country, the lack of protection of the worker in face of criminals, the promotion of unrealistic and unreasonable needs, the impossibility of meeting them by honest labor, and, what is the main thing, the lack of clearly formulated and scientifically substantiated goals and programs of the development of the country.

Under these conditions professionally trained people are simply obliged to unite and organize.

I will familiarize the readers of LITERATURNAYA ROSSIYA with the principles of the formation of the academy, which were formulated by the Nauka i kultura Association. This project for the most part was endorsed by the Constituent Assembly of the Central Department of the RSFSR Academy of Sciences and the Organizing Congress of Russian Scientists, which were held in Leningrad.

1. The Russian Academy of Sciences is the highest scientific self-managed organization of the RSFSR, which unites everyone, who by his creative labor makes a contribution to the development of science, engineering, technologies, culture, and education and to the strengthening of the health of the people and the defense and state system of Russia. The Russian Academy of Sciences operates on the basis of state laws and the

charter of the academy without any interference of other structures, organizing independently the efficient work of its subdivisions in the area of basic and applied scientific research and the training of scientific personnel.

2. The Russian Academy of Sciences is based on two types of organizational structures: regional departments (scientific centers) and scientific councils for directions of research.

The Russian Academy of Sciences has within it scientific research and planning and design subdivisions, educational institutions, enterprises, libraries, publishing houses, information media, and other structures.

Basic scientific research of the Russian Academy of Sciences is conducted on the basis of special-purpose state financing from the RSFSR state budget, by means of assets from the USSR budget, which are allocated for all-union scientific programs and scientific and technical programs, as well as at the expense of organizations and people interested in strengthening Russia. The results of basic research are turned over free of charge to the state with the retention of the copyright.

Public funds can be placed at the disposal of the Russian Academy of Sciences and its departments.

3. The Russian Academy of Sciences has as its goal the emergence and development of basic and applied research in the area of the humanities and the natural and technical sciences in directions, which are priority ones for the RSFSR and contribute in every possible way to the salvation, preservation, and flourishing of the peoples of Russia and to the development of culture and education, as well as the efficient use of scientific knowledge in all areas of creative activity.

The directions of research are specified by the scientific councils of the Russian Academy of Sciences, which are organized at the regional departments and scientific centers.

The Russian Academy of Sciences formulates recommendations on the strategy of the development of the republic and its regions and on the priority financing of prevailing scientific programs and projects, substantiates before the government of the republic the necessity of the formulation and the amounts of financing of new basic and applied research programs, organizes and conducts the examination of the most important scientific programs and projects of economic and political activity on the territory of the republic, and advises the Supreme Soviet and the government of the RSFSR on problems of science, technology, education, and administration.

The organization of broad international ties by the establishment of joint scientific organizations and centers, the exchange of scientists, and the use of other

forms of modern scientific cooperation in the interests of Russia is one of the basic tasks of the Russian Academy of Sciences.

4. Membership in the Russian Academy of Sciences is recognition of the scientific achievements of the scientist and his services to Russia. Material compensation is not made for membership in the Russian Academy of Sciences.

The number of members of the Russian Academy of Sciences is limited. After reaching a specific age the members of the Russian Academy of Sciences are elected honorary members with the mandatory granting of an academy pension for life, the amount of which is specified by the charter of the Russian Academy of Sciences.

5. The president and other executives of the Russian Academy of Sciences and its regional departments and centers are elected. The election procedure is specified by the charter and should provide for the continuity and renewal of their staffs. The primary scientific councils (institutes, laboratories, enterprises), which are elected by all the scientific associates, nominate representatives for the scientific councils of the centers, from which the councils of the departments are elected, while the Council of the Russian Academy of Sciences is elected from among their members. Figures of culture are elected to the councils in accordance with a similar procedure.

6. The election of members of the Russian Academy of Sciences is conducted by the general meeting of scientists of the regional departments in accordance with quotas, which are established by the general meeting of the Russian Academy of Sciences, from among the scientists who work in the given region. The election results are approved by the general meeting of the Russian Academy of Sciences.

The procedure of electing the initial contingent of members of the Russian Academy of Sciences is being formulated by the committee for the organization of the Russian Academy of Sciences. The staff of the organizing committee is formed by a group of authoritative scientists, who are nominated by Russian public organizations and are well known for their activity for the good of Russia, jointly with the Committee for Science and Public Education of the RSFSR Supreme Soviet by the broadest and careful consultations and discussions with many scientific and public organizations of Russia, after the publication of information on the candidates for members of the organizing committee in the press. The organizing committee is approved by the RSFSR Supreme Soviet.

Lithuanian SSR Academy of Sciences President Interviewed on Statutes' Changes

917A0131A Vilnius TIESA in Lithuanian 29 Dec 90 p 3

[Interview with Juris Pozela, president of the Lithuanian Academy of Sciences, by Terese Kieziene: "The Academy Wants To Be Self-Governing"]

[Text] [Kieziene] On December 12, TIESA published a statement from the General Meeting of the Lithuanian Academy of Sciences. We would like you to comment on what forced you to defend the Academy?

[Pozela] This was not so much a defense as a clarification to the public. You see, people interested more in politics than in science started to spread information distorting the essence of the Academy's reforms. Everything was done not in accordance with the laws to call up those illegal elections.

It would be forgivable if such views were expressed by people who had no knowledge of Academy affairs. But this is being done by the secretariat of the Lithuanian Scientists Union, by leaders of research and study departments. They are very familiar with the changes in the Lithuanian Academy of Sciences' principles of operation. Back in December of 1989 the highest body of the Academy, the General Assembly, announced that it is changing the old statute in which one of the first points to be written was that the Lithuanian Soviet Socialist Republic's Academy of Sciences was guided by the Lithuanian Soviet Socialist Republic's Council of Ministers and the USSR Academy of Sciences' Presidium, and that the Academy contributes to the creation in the Soviet Union of a communist society.

And what does the new statute declare? First of all, the Lithuanian Academy of Sciences is autonomous and is independent of the USSR Academy of Sciences and of its political and governmental institutions. Secondly, its activity is devoted to serving the interests of progress and humanism and Lithuania's well being.

Having changed these essential points, it was necessary to change others which were affected by them. One of them was elections. The Statute obliges us to guard the elections against outside intervention. But the Lithuanian Scientists Union did not like this independence, nor did certain deputies to the Lithuanian Supreme Council. What, then, would they propose? That we be guided by the old Statute? Or maybe we should do nothing, just fold our hands and sit there?

Just sitting there is not the wisest thing to do.

[Kieziene] What does autonomy mean for the Academy? What will it contribute to science?

[Pozela] Whoever has worked in the Academy will assert that our inner lives were always democratic. It is entirely another matter that the Academy lacks autonomy in its own activities and that it was obliged to Lithuanian and USSR planning committees. The USSR Academy of Sciences was like the chain between them. That is why it was difficult to change anything in a situation guided from the outside. Suppose that the center financed technical education but gave very little support to humanitarian studies. Not we but they determined the way that science would develop.

So, most importantly, the Academy strives to protect science from decisions by incompetents, from decisions guided by outside forces, from party interference in science, even from the influence of government, because science must have its own laws of development.

Second is the issue of further democratization of Academic life. We have given institutes full self-governance. Their internal matters and own problems are solved by the director, the scientific council, and the collective. Institutes, which carry out fundamental research, by their own free will join an association—the Academy of Sciences. This cooperation is necessary not only because there are many common offices, such as the library and various technological centers. If current research requires cooperation, whereby one branch of science assists another to implement it, it seems to be an insurmountable barrier.

Thirdly, the Academy assumes a role of scientific expert. We must have serious science and plan its direction. This is why the statute of the Academy of Sciences envisions increasing the number of full members to 40, of corresponding members to 60, and supplementary electing another 50 expert members. Thus there will be in all 150 or the most renowned Lithuanian scientists, free and independent. I do not imagine who would be more qualified than they to carry out an examination of the quality of science, or to advise the ministers and government on one question or another.

[Kieziene] Collective wisdom is a great thing, but it also needs a leader. What functions remain for the presidium?

[Pozela] Not so much administrative as creative ones. Together with the institutes, he will decide their interactions, their international relations and problems in their international programs. Apart from this, the administration wants to have some funds, even if they are small. It is said that in science, the most productive ideas are those that no one believes in. A new, actual, progressive field of research can appear suddenly—in one head, in one laboratory—in a month, sometimes even in a week. That is why we need a small fund to be able to support such an idea in a timely fashion.

[Kieziene] Institutes have known about and considered the new program of the Academy of Sciences since Spring. Are there not any who have expressed a desire to leave the Academy?

[Pozela] None yet.

[Kieziene] But do they expect cooperation in the future? Previously, even before the restructuring, there had been talk of that but we saw no changes for the better...

[Pozela] Every barrel needs a base. And Lithuanian science received fewer funds than in any other country in the world. In order for scientists to be able to work at full strength, they have to have apparatus and equipment. They lacked these. Finally, even cooperation was just on

a formal basis. A nonviable system is condemned to die. That is why we are creating a new one. The institutes which will come to the Academy of Sciences will be stimulated to cooperate with other institutes and to work on a world-class level. Quality control is the Academy of Sciences' most important task.

[Kieziene] For several years you have extended your hand to schools of higher learning and said, "Let's cooperate." Recently there has been talk that the best solution is to eliminate the Academy and hand over the institutes to schools of higher learning. Which opinion is the wiser or more progressive one?

[Pozela] Each one has its own problems. The problem with schools of higher learning is that their preparation of specialists is poor. I do not think that they would express their problems in this way.

If we were to destroy the Academy of Sciences, we would destroy Lithuanian scholarship. You can restore agriculture or industry in two, three, or five years. It takes 10-15 for the fruits of science to ripen. What would agriculture and industry feed from them for that long a period of time? Foreign aid?

That is why I am proposing that we create and not just destroy, that we create flexible relations between the Academy and higher schools. When teachers devote eight-tenths of their work to scientific work and leave only two tenths for lectures, when students will not only memorize what is in their textbooks but will work in laboratories themselves together with their teachers, then teachers will change as well as students together with schools of higher learning. It would not be hard to do. We invite them. The doors of the Academy are open to teachers and students of graduate schools.

[Kieziene] What do you believe is preventing such an alliance?

[Pozela] Fear, I believe. Teachers, exhausted after 700 hours of lecturing during the year, having not kept up with research, no longer consider themselves in the role of scholar. Scientists are the other hand, do not consider themselves in the role of teacher. And then there is also the fear of competition. The teachers will have to struggle as well as the students.

There is yet another reason. It is a narrow outlook, the desire to absolutely have your own property, in this case the institute. "Mine" or nobody's.

I would like to suggest a different concept—an academy institute and a school of higher learning under the same roof. I see nothing wrong in calling it something like The Lithuanian Academy of Sciences Institute of Mathematics at Vilnius University, or The Academy's Physics Institute at Vilnius Technical University or the Pedagogical Institute. This is the practice in most countries. An Academy institute can cooperate with several schools of higher learning, even found departments within them.

It would not be difficult to do provided there is no preliminary determination. Remigijus Baltrumiejuas went from the University to the Physics Institute and founded a joint laboratory. The restoration of Vytautas Magnus University in Kaunas joined a large part of the Institute of Physical and Technical Problems to itself: the Department of Informatics gave it space and offered teachers.

I think that scientific institutes also have a lot to gain in cooperating with others. Suppose the Institute of Agriculture had a common laboratory with the University, and another with the Institute of Ecology or the Institute of Botany.

[Kieziene] Did you mention the Institute of Agriculture accidentally, as an example?

[Pozela] Not quite. Once upon a time it was struck from the system of the Academy of Sciences. Its fate is proof that it is difficult to rise to the level of fundamental research alone.

[Kieziene] Models usually rely upon the past, upon experience. Is it possible to compare Lithuania's new scholarly structure with the scholarly structure of any other country?

[Pozela] I know of no serious country whose institutes of fundamental research do not cooperate. This can take all kinds of forms. There are academies of sciences. France and Italy have state scientific centers. In the USA large universities play the role of research coordinators. In California Stanford University is responsible for scholarship, preparing only Ph.D.'s. In Germany the Max Planck Institute is an example of such an association of scientific institutions. This is the essence, not the name. You can always change a name although I do not see what Lithuania stands to gain from breaking its traditions. I also find it unacceptable to destroy things merely for the sake of promoting one's career or for political reasons without thinking about how better to replace it. And it is sad that the Lithuanian Scientists' Union, the Education and Study Department are behind this half-baked initiative, this attempt to divide and politically control Lithuania's science.

**President of Intellectual Property Exchange
Discusses Organization**

*917A0142A Moscow IZVESTIYA in Russian
16 May 91 p 6*

[Interview with Viktor Dmitriyevich Markov, president of the International Intellectual Property Exchange, by Vl. Arsenyev; date and place not given: "The Wisdom of Solomon for Everyone Who Wants It"—first three paragraphs are IZVESTIYA introduction]

[Text] The International Intellectual Property Exchange (IIPE) has been registered in Moscow.

There are no analogs of this exchange. And, perhaps, precisely it is fated to change for the better the situation with scientific and technical creativity in the country. Judging from the goals and tasks, which its directors are setting, the possibilities of the exchange will interest many enterprises, organizations, and institutions.

Viktor Markov, president of the International Intellectual Property Exchange, answers the questions of IZVESTIYA.

[Markov] Founded by the USSR Academy of Sciences, the USSR Scientific Industrial Union, and the All-Union Copyright Protection Agency, Viktor Dmitriyevich says, the International Intellectual Property Exchange with authorized capital stock of 5 million rubles is a market structure in the sphere of intellectual labor. And in this capacity it is an absolutely new phenomenon for our country. The object of activity is scientific and technical developments, innovations, effective technologies, and, in the future, works of art, literature, and the cinema.

[Arsenyev] What necessitated the establishment of the exchange?

[Markov] The country has an enormous intellectual potential. There are a large number of scientific and technical developments. But, unfortunately, many of them have not been claimed and are gathering dust on shelves. Technological backwardness in many respects is governed by the lack of proper stimuli for enterprises to introduce in production new technologies and the achievements of scientific and technical progress. Our task is to increase the economic interest in this matter. Both of developers and of consumers. The exchange mechanism, in our opinion, makes it possible to do this.

[Arsenyev] How?

[Markov] Thousands of owners of intellectual property and hundreds of thousands of consumers—enterprises, institutions, and organizations of the USSR and firms and corporations abroad—will participate in the work of the exchange. The entire world, and not just the world located in Moscow, will actually become the exchange hall.

We are prepared to systematically notify subscribers of the exchange about all new scientific and technical

developments. And, we believe, this will make it possible to easily get one's bearings in the world of invention and rationalization and to find what is needed. We expect, of course, that the work of the exchange will have a favorable effect on the domestic national economy. Moreover, the sale of scientific and technical developments abroad provides a certain influx of currency into the country.

[Arsenyev] Who can become a subscriber of the exchange?

[Markov] For a modest fee any enterprises, which would like to offer their developments to the exchange, or as consumers of intellectual property can become subscribers. They will receive free of charge all information about the activity of the exchange and the innovations being disseminated by it—by means of exchange bulletins and a video journal. I will note: Only subscribers of the exchange receive a reward for the development and introduction of innovations. We provided all explanations of the subscription procedure in the fourth number of the journal IZOBRETATEL I RATSIONALIZATOR.

[Arsenyev] Is it now possible to say what amount of information about innovations, inventions, and rationalization proposals the exchange will have?

[Markov] If you proceed from the experience of the commercial dissemination of the technical specifications of the developers of a design and in conformity with the lower values of expert estimates, the adjusted technology of the work of the exchange makes it possible to sell up to 1,000 innovations every month....

**Little Public Interest in Proposed Law on
Intellectual Property**

*917A0147A Moscow RADIKAL in Russian No 17,
3-9 May 91 p 2*

[Article by Sergey Leskov under the rubric "The Extraction of the Essence"; "The Privatization of Ideas"—first paragraph is RADIKAL introduction]

[Text] In the union parliament the next draft law awaits discussion. It is called "On Scientific Intellectual Property in the USSR and the Strengthening of Its Protection." (In international practice there are understood by property of this sort inventions, drawings, materials, prototypes, strains of microorganisms, models, instruments, substances, formulas, computer programs, and so forth.) It seems that this draft law is arousing little interest of our community.

We will be frank—our society has not yet attained an understanding of the necessity and social benefit of the protection of intellectual property. This is a consequence of the protracted process of the deintellectualization of the country, where spiritual culture and science for the purposes of the security of the ruling bureaucracy were purposefully subjected to the utmost degradation. This is also a consequence of the more general process of

making society declasse, when any allusion to property was considered the most terrible of possible sins.

However, it is not out of place to ask: But why, strictly speaking, create special conditions for scientists and technical specialists? When, one would like to know, did Soviet science and technology achieve the greatest successes? Was it not during the years, when the intellectual cream of society worked in "little worlds," while no one thought about conferences and foreign business trips and heard about the ownership of one's own ideas? But it does not matter, they gnawed the granite of science, built aircraft, tamed the atom.... Is it perhaps more correct not to give rights to these untrustworthy intellectuals, but simply to leave the best that there was under former orders? Especially as this is also not that difficult. Today nearly half of our scientists are also still working in "mailboxes," which are enclosed by a high fence and in many respects inherited the atmosphere of the "little worlds."

Yes, strong-arm methods actually can ensure success. But history testifies that this is temporary success, moreover, only in individual areas. And the primary thing is that it is only at the initial stages of the scientific and technical revolution. In the 1960's, 1970's, and especially the 1980's in the developed countries the scientific and technical revolution picked up speed with gigantic strides, while our narcissistic administration by mere decree brought domestic science back to where it started. Whereas in three or four fields we are still in the "driver's seat," in the rest we are bringing up the rear. And it is clear why. The management of science, just as any process, should be organized so that internal stimuli for its development would be created and a person would sense a moral and material interest in his own labor. This truth is correct in any area, but, perhaps, to the greatest degree in science. "The most pathetic slave is the person, who enslaves his mind and recognizes as the truth what his mind does not recognize"—it is possible to apply these words of L. Tolstoy in a most direct manner to the history of Soviet science. One must not expect great discoveries from an enslaved scientist. Not by chance has the Soviet Union given the world fewer Nobel Prize laureates than little Switzerland!

Today we are seeking a way out of the deadlock and the emancipation of economic relations and personal initiative in the market economy. But it is impossible to "introduce" the market in a separately taken area, the new relations should permeate all areas of life. What should the market of the scientific and technical product look like? In the developed countries it has existed for quite a long time; it is natural that the legislation on this question has also been elaborated in detail. The contract system is at its basis: Every scientist when hired concludes with the firm an agreement, in accordance with which a certain share from the use of the scientific and technical product, which was produced by him personally, is guaranteed him even in case of his transfer to a different job. On the other hand, the scientist is obliged

to guard the trade secrets of this enterprise and not to let anyone into his scientific research—also an absolutely unknown concept for us.

Today our occasional contracts with the civilized world are somehow reminiscent of the relations of Captain Cook with the natives—who will betray whom. It happens that we manage, by using our own "indigenous" freedom from the laws passed throughout the world, to get hold of something, in our opinion, valuable. But significantly more often the western partners, who know the cunning legal tricks inside out, "dupe" us.

Strictly speaking, there are countless such incidents, but I learned about this from Prof. A. Vladislavlev, chairman of the executive committee of the Scientific Industrial Union. In the 1960's the USSR purchased from the Italian firm of Montescatini compressors, in which incomprehensible vibration processes developed—it shook them terribly until they fell apart. V. Vladislavlev with a group of colleagues developed a unique technology, by means of which the vibration was eliminated not only in the compressors, but also in any pistons and in pipelines, which given adverse factors could have led to the explosion of giant plants. And then two professors from the Italian firm came to the Soviet Union—try as they would, they could not understand the causes of the defect. But it causes our people to burst out of pride, they tell everything about their own technology. Having come home, the Italians, not being fools, published the new technology under their own name, patented the advanced method, and began jointly with their firm to cut coupons from the invention of the Soviet engineers, who were left with a wooden plow.

And how many similar sad examples there are in the basic sciences! The bureaucratic delay with the issuing of an inventor's certificate to V. Ivanov dragged on for 24 years. Finally the document was received, but 13 years before this Americans P. Lauterburg and R. Damadian became famous for the same achievement. And the invention is epoch-making—tomography, which is based on the phenomenon of nuclear magnetic resonance!

A fact, which it would be possible to call paradoxical, if it did not recur so often in the most different areas, supplements the picture: The USSR back in 1967 signed the International Convention on the Establishment of the World Intellectual Property Organization, but this to no extent affected our own legislation....

Whoever believes that the changeover to a market of the scientific and technical product is simple and uncomplicated, is severely mistaken. Intricate problems, which for the present we do not suspect, will inevitably arise. What is one to do, for example, if a scientist has invented something, which the administration did not ask him for? Is it possible to buy a person, as they say, "lock, stock, and barrel"? In world practice the right to the "first night" is reserved for the employer, but he may also not avail himself of it. The most celebrated example on this theme is the history of the development of

personal computers. Two young electronics experts, who worked under contract in the aerospace industry on completely different problems, as the law required, offered the still quite "raw" idea to their own firm. Only after it renounced the rights to the "unpromising" idea did they begin their own development in some abandoned barn. In a few years there emerged the Apple Corporation, the largest corporation for the production of personal computers, which has captured nearly the entire world market. The result: Not only the authors of the idea prospered, the state became stronger, all of society was enriched. But there can be no claims on the part of the firm that let slip the brilliant idea—except against itself.

In the USSR intellectual property belongs to everyone and to no one specifically. Society is incurring colossal losses from this lack of an owner, the state, which formally is the owner of all ideas, but does not have the means to exercise total control over them, also loses.

Self-respecting western firms have their own security services, even rank and file associates hold the trade secret sacred. Is it worth saying that the protection of intellectual property and the trade secret in principle cannot be carried out by means of classified secret services, which have been established for state protection? At the same time in the USSR only the institution of state secrecy exists. How are joint ventures and western firms, which operate on the territory of the USSR, to work under the conditions of legal "incompatibility"? For the present absolutely nothing can keep an associate of a joint venture, having provided himself with the necessary secrets, from going over to a competitor. One cannot turn then to the services of the KGB! Major western partners see: Intellectual property in the USSR "is doing poorly," and prefer not to risk their own secrets. As a result only the firms, which cook hamburgers and pizza, are prospering in our country....

It is possible to take an illustration from any area. We are making desperate attempts to approximate the level of computerization of the developed countries. But if you call a spade a spade, it will have to be admitted that in the USSR at present "computer piracy" is flourishing. From 50 to 99 percent of the software subject to the class of the computer is obtained in our country illegally—by the borrowing of finished foreign solutions. Of course, without the knowledge of the authors. Earlier in the West they turned a blind eye to these "pranks"—informatization was in embryo. But now, when the Soviet market has begun to be of some interest, foreign firms are displaying legal anxiety with regard to their intellectual property and are sensibly being cautious with contracts. For example, the American firm Microsoft, having discovered at the Moscow Technology Exhibition several cases of the "pirate" use of its software by Soviet scientific research institutes, would hardly flourish from pride and begin to make plans for the future.

The draft law has been published, but discussions over it have not been heard. The ancients said that when the

cannons thunder, the muses fall silent. Perhaps, when the counters are empty, do minds also run short? It would be simplest of all to exclaim: We will not begin to live in abundance, if intellectual property, the most precious thing that man has, remains ownerless. But emotions today are overwhelming everyone—and new ones no longer make an impression. I will cite then an example from the practice of the state that people esteem now as the most convincing model for imitation. Since 1983 the U.S. Congress has passed 14 laws that support the right to intellectual property.

For us, as is evident, it is also the only one—for the present it is burdensome....

S&T Bureaucracy Accused of Driving Out Best Scientists

917A0135A Moscow *IZVESTIYA* (Union edition)
in Russian 5 May 91 p 4

[Article by Sergey Leskov: "Retribution. Why Scientists So Often Become Social Outcasts"]

[Text] The words of Mendeleyev: "Knowing what a carefree, free, and joyful life one leads in the scientific sphere, you automatically wish that many people would enter it" are embossed on the pediment of one scientific research institute of the capital. It is unknown whether this phrase inspired contemporaries, perhaps it did, but now in society they will regard the person, who takes this appeal literally, at best as a not very informed person. In "the scientific sphere" it is not that for a long time it has been difficult to breathe in a carefree and joyful way—here the fortunes of talented scientists are continually being ruined and conflicts, which are unprecedented in intensity and interminability, are flaring up. The barometer of the moral atmosphere has fallen much lower than the average mark, which, as it is, is not too satisfactory for our society. And in science it is particularly hard for its sincere enthusiasts to breathe....

It is possible to argue endlessly about the criteria of the work of a scientist. But, you will agree, if three books, which are displayed at the largest international congresses, have been written and published in a short time, if the honorary diploma of the respected Moscow Society of Naturalists for the best work of the year has been received, if articles, by standing up to competition, make their way into the collections of representative international and all-union conferences, even a prolific collective can envy such results. Meanwhile, everything listed above was done by Margarita Maksimovna Povilaytis. But at the moment, when her works were receiving quite serious appreciation, Povilaytis, a candidate of geological mineralogical sciences and a specialist in tungsten ores, was earning her living by drawing pictures on the Arbat for money. Fortunately, the youthful talent in the area of painting had not yet disappeared. But in accordance with the results of certification she was fired from

her own Institute of Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry (abbreviated IGYeM) of the USSR Academy of Sciences.

There would have been many flattering offers from other institutions, but Povilaytis rejected all the versions, wishing to prove her own right to work precisely at the IGYeM. As a result there have been three years of unemployment. You will not get fat on amateurish pictures, for the chronic failure to pay they removed the telephone from the home of Margarita Maksimovna. Only once did the unemployed Povilaytis on the intercession of then Chairman of the All-Union Central Council of Trade Unions S.A. Shalayev receive a grant of 230 rubles, which immediately went to a typist for the retyping of manuscripts. The complaints of Povilaytis to various instances, as is our custom, were forwarded to the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the USSR Academy of Sciences, from which a cool response came: In case of the firing the law was not violated, there is no need to reconsider the case.

It would be simply amazing if the administrative command system with its contempt for judicial authority and in general for legality were to miss the opportunity to keep on the hook performers who have no rights. The certification of scientific personnel was introduced in 1985 in accordance with the decree of the CPSU Central Committee, the USSR Council of Ministers, and the All-Union Central Council of Trade Unions "On the Improvement of the Remuneration of the Labor of Scientific Personnel, Designers, and Process Engineers of Industry." The procedure, it must be said, is uncomplicated. The director of the scientific institution personally appoints the members of the certification commission. The fate of a person depends in the literal sense on its conclusion. But in six long years the scientist was unable to appeal judicially against so biased a decision as you wish—for justice it is permitted to appeal only to the superior instance, which practically always backed the administration that was appointed by it. Only at the last session of the USSR Supreme Soviet was a change made in the legislation: Scientists are permitted to seek justice in the court. But it is too early to applaud....

The regrettably famous lists of the nomenclature—people, whose claims are outside the norms of jurisdiction—were invented by Stalin. But whereas in the 1930's only the highest executives with the rank of ministers were included in the lists, with time the number of "screws" of the system grew and grew. During the "stagnation" times 12 million people—from directors of institutes to plant foremen and actors—in case of labor conflicts were not of their own will "immune from jurisdiction." And, finally, the latest, "perestroyka" reform raised the number of citizens, who were deprived of the first, according to the expression of Engels, right of a free person to appeal to the court, to an astronomical limit—23 million. One of the many paradoxes of socialism with a "human face." But the decision of the Supreme Soviet, as IZVESTIYA has already noted, is a

compromise one: Many categories of citizens remained on the ill-fated lists of those who are not permitted to seek protection against arbitrariness in the court. For example, people's judges, who will consider the claims of fired people. An unwelcome decision will hit them like a boomerang. Man is controlled by the system....

How does this ill-fated certification take place? Such scientists as Povilaytis with an impressive reserve of 100 scientific works and six books do not always stand up to it. But it is foolish to draw from this the conclusion that legions of rank and file associates come to grief. Povilaytis was the only one for the entire institute, who did not satisfy the requirements of the certification commission. Meanwhile it is no secret that at any institution the "ballast," which fulfills the minimum duties, makes up a significant portion, according to the well-known Parkinson's law—80 percent of the collective. Such associates, however, pass through the sieve of all examinations without difficulties, like remnants of a piece of soap.

The criteria, in accordance with which they write out for a scientist a card indicating "political unreliability," are entirely different....

The story of Povilaytis is typical, it differs little from tens of similar ones. Academician F.V. Chukhrov headed the IGYeM for about 40 years, Academician N.P. Laverov has headed it for the last three years. And although Nikolay Pavlovich tried to help Povilaytis, he has not been able, it seems, to change the overall atmosphere at the institute. There are so many important state posts! The office of Laverov at the IGYeM, I was there, creates a completely uninhabited, memorial impression.

Trouble followed her everywhere—from the time she became an independent researcher. Margarita Maksimovna is absolutely not experienced in court intrigues and in diplomacy. How much just one devastating review of the monograph of one's own laboratory head is worth! Or the categorical refusal to report back to the institute's scientific council, on which, as she declared, there are no specialists who are capable of evaluating her research. In the everyday respect a complex person, it cannot be denied. But all the same it is not worth reducing science to everyday life. Povilaytis, and this is the primary thing in her life, is selflessly in love with science and is prepared to engage in it day and night, but also carries her uncompromisingness toward the scientific truth over to the area of human relations. Perhaps, this is why she has also not formed a family....

Everyone, who has a bearing on science, has become engrossed in reading the novel of D. Granin "Zubr" [Die-Hard] about the life of the fine Russian scientist N. Timofeyev-Resovskiy. For some reason it seems to me that in the understanding of many people the scientist received his respectable nickname owing to major scientific services and unusual clashes of life. But the main thing in Timofeyev-Resovskiy was not the external circumstances of life, but his exceptional moral qualities, decency, and devotion to science. This also made him in

the contemporary scientific surroundings a "Die-Hard." I would like to avoid lofty comparisons, the scientific scale here, apparently, is incompatible, but if we talk about the moral qualities of a scientist, Margarita Maksimovna Povilaytis is the same "die-hard." And in exactly the same way her devotion to her favorite cause remains unclaimed, this simply hinders her colleagues. They were drowned in tears over the fate of the book hero, but did not think about what is happening close by....

The question is a perennial one: What is more important—to live in order to work well or to work in order to live well? Now we are inclined together to the second extreme, Povilaytis maintained loyalty to the first one. As it seemed to me, Margarita Maksimovna examines everything taking place around her in black and white tones: It is useful for the accomplishment of a posed scientific task or it is not. A type of scientist, which previously was widespread, but now has nearly become extinct. These "fossil" enthusiasts, who are demanding and intolerant, simply cannot but irritate the usual "mass" scientist! It does not occur to them that for their most part scientists are down to earth, they want to achieve comfort and success in life and regard science, if they found themselves in it, as a means of achieving this goal.

Our society is based on a general shortage. And in our science there are not enough good things—titles, degrees, positions—for everyone. It is possible to get what is desired only by having joined a united group. The labor of a scientist, thus, should be useful not only to science in itself, but also, perhaps, to an even greater degree to some corporative interests. The Soviet scientist if only out of a sense of self-preservation is forced to attach himself to some powerful group. That is why, incidentally, fictitious coauthorship is also so widespread in our country. (Once I held in my hands the bibliography of scientific works of the president of one republic academy, from which it was obvious that this scholarly man in a year publishes on the average a good 100 works. Of course, as a coauthor.) If a scientist displays adherence to principles and does not wish to submit to this parascientific racket, the fate of the leaky little ship, which got into a fierce storm, awaits him. Even if there is priceless cargo in the holds—no one is interested in it and responds to the SOS signals.

The tragedy of Povilaytis and those like her also consists in the fact that, while loving science beyond measure, they do not seek cover for themselves—they throw the outcasts into the open sea. Incidentally, it has been noted that such single enthusiasts find spiritual repose and some support in contact with foreign colleagues, from whose safe heights all these intrigues around group interests are no more than petty scheming....

Margarita Maksimovna Povilaytis fully experienced the entire range of administrative persecutions. They hindered her in every way in publishing works, constantly "cut off" financing, took away assistants, and did not

send her to necessary conferences. Given her nature she herself also increased her difficulties tenfold, but in former times it was difficult to get rid of Povilaytis. Such people take the edge off the pain and wounded feelings by even more selfless labor—this is like a protective reaction against adversities. Scientific certification became in this respect an incredible gift—you will not invent a better means for combating unwelcome people! And, what is important, the making of short work in talented people does not threaten its inspirers with anything. The hour has come to answer for all one's caustic remarks....

One need not be surprised that in the kaleidoscope of informal organizations in 1988 there also appeared the following one—the USSR Association of Unemployed Citizens, which unites mainly people of intellectual labor. In Moscow alone, according to the most modest estimates, there are more than 200 scientists who have been deprived of the right to get reinstated through the court. Unemployed scientists of Minsk, Kiev, and the Far East are obtaining advice from the Muscovites, a similar association was recently formed in Kharkov. Incidentally, you will not find drunkards, loafers, absentees, and simply ignoramuses in the association. It takes under its wing only those who were fired truly unjustly—experienced lawyers carefully check all the facts.

We talked in detail about the activity of the association with its cochairman, Candidate of Chemical Sciences A. Aliyev (70 scientific works, published works in the United States, England, France, and Italy, seven graduate students who defended dissertations, in 1988 after certification he was fired from the Institute of Petrochemical Synthesis of the USSR Academy of Sciences). Here is what surprised me: During calls at various institutions they receive representatives of the association as private people. They have a talk out of charity—and then far from always. They more often do not respond to letters. Official scientific structures—the Academy of Sciences and the State Committee for Science and Technology—are ignoring the association. Does the very fact of its existence really not merit the attention of the leaders of our science? Is the inactivity of skilled specialists, who long for work, really a minor event for science? But by what, then, is one to explain the silence—by indifference or by blindness?

In recent times the theme "the brain drain" has become popular. With a hint of self-humiliating sensuality we are foretelling that here, they say, soon the most intelligent people will file over the border. But this is just a part of the iceberg. The process of the bleeding of science, which has continued for years within the country itself, is, it seems to me, far more dangerous. The "brain drain" is directed not only toward the West, emigre scientists by their achievements to some extent continue to enrich our science as well. But as a result of endless conflicts thousands of industrious researchers, who do not have a famous international name and who also constitute the

culture medium of science, are passing into nonexistence. Such a "brain drain" is inconspicuous, but is of a far greater scale and is far more serious with respect to consequences.

Another fashionable theme is complaints due to the lack in the USSR of Nobel Prize laureates. Many just words have been written in this regard. But the birth of geniuses is an unpredictable process, perhaps, the training in our country is inappropriate or the climate is not conducive to this. In developed countries the average citation index of scientific works serves as a more objective, mean indicator of the productivity of the scientific environment. Here is an amazing fact: Only two (!) Soviet scientific institutions exceed the average citation index for institutes of the world. We have thousands of institutes—more than in all the rest of the world, but they are running, as is evident, idle.

What has happened with our science? Why does only the "mass" scientist, who is not encumbered with heretical ideas, is moderately efficient, and if he has pretensions, they are aimed exclusively toward a career and toward administrative advancement, feel good in it? The scientific environment is becoming less and less moral, which is disastrous for any creativity. And for its own gain it costs the collective nothing to sacrifice an individual, without pondering in the least over the fact that, in essence, this is the highest immorality. And even erudition does not help, it is not connected directly with morality and with decency. Even the opposite happens: Precisely in science the domination of administration by mere decree and bureaucracy, which are contraindicated to it, has the strongest effect....

At one time in his famous messages P.L. Kapitsa tried to get it into the heads of the leadership of the country that a true talented person may be capricious, self-willed, and extremely inconvenient for forming into ranks, but it is expedient if only out of practical considerations to tolerate this, for otherwise there will simply be no talented person. During the times of Kapitsa a threat hovered over the heads of a handful of people, in our days persecutions of talented scientists are no longer a rarity. From fruitless scientific research institutes precisely the few scientists, who could maintain their sickly reputation, are being driven out. The situation merits serious analysis at the Academy of Sciences, but there they display activity only during the pre-election period, confirming thereby all the observations about parascientific cliquishness.

How is one to separate administration by mere decree from scientific research? It would be thoughtlessness to

propose a panacea, but, perhaps, it would be worthwhile to look more closely at the experience of the Institute of Carcinogenesis, which is a part of the All-Union Oncological Scientific Center of the USSR Academy of Medical Sciences. Several years ago the central press wrote much about this institute, the atmosphere here was simply terrible, the people promoted from bureaucratic circles attempted to crush science. But the collective stood its ground and achieved the discharge of the director. Now at the institute all the management structures are elected and are regulated by a constant rotation—the director, the scientific council, the certification commission, and the council of the labor collective. The administration does not have the right to make decisions without the approval of the scientific council, to the meetings of which all persons interested are admitted. Here for a long time now there have been no conflicts, which are so usual for other institutions. Published works in the most prominent world journals, about which they previously only dreamed, have become regular. International cooperation has expanded to mutual benefit, moreover, not chiefs, but those who need to are going on business trips. About 20 scientists (even one laboratory as a whole) received prestigious international grants.

At institutes, which are connected with the military-industrial complex, such an "orgy" of democracy will hardly take root. But here, too, there is a solution—to follow world experience and to introduce the contract system more extensively. In the draft of the law on the protection of intellectual property there are hints at the conclusion of contracts, but when will this law be passed? For the present laws that, at first glance, are a little more important are being discussed in the parliament. But will the economic reforms advance, if the conditions for the progress of science and technology have not been provided in society?

They reinstated Margarita Maksimovna Povilaytis at the IGYeM. Only because, it seems, the administration decided not to get upset. But as before there is a vacuum around the scientist, her work is ignored and no one needs it, they merely pay her a wage. This situation is humiliating—and she is protesting. They will again regard her, of course, as a troublemaker. From the standpoint of the system payment for unnecessary work is normal, in the nature of things.

Everything has remained in its place. The "brain drain" not only is continuing—it is being encouraged. The priceless ability to reproduce knowledge is worthless and is turning into a burden. The opposition of the bureaucracy and the scientist—is this really insurmountable?